

Manufacturers Record

Exponent of America



\$6.50 per Year.
Single Copy, 20 Cents.

Baltimore, Md.
OCTOBER 5, 1922

Wherein the Mills of the Gods, Though They Grind Slowly, Grind Exceeding Fine

In 1794 there was an uprising in Pennsylvania, known as the "Whiskey Rebellion," against the enforcement of the Excise law which had been enacted by Congress in March, 1791, on domestic spirits. The attempt to enforce the law was followed by wild excesses, stormy times and riotous violence, the Federal Revenue officers in some cases being tarred and feathered. So aggressive became the violators of the law that in order to crush what reached the magnitude of a rebellion against the Government, Washington sent a large military force into Western Pennsylvania against these law violators. One of the most prominent leaders fled to New Orleans and others were tried and convicted of treason, though subsequently pardoned.

A somewhat similar condition developed in 1862 and continued for ten years following the enactment by Congress of a tax on whiskey.

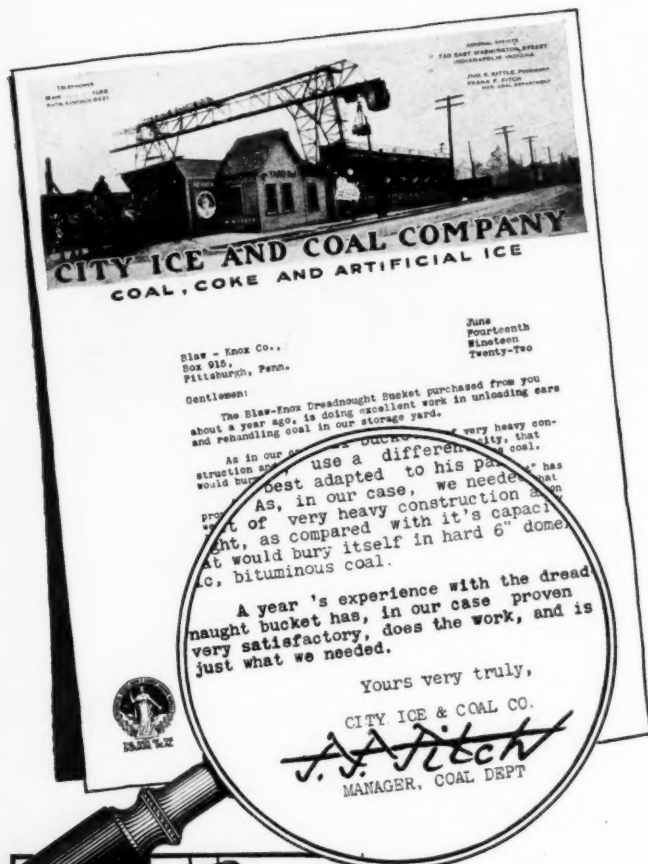
In the "Whiskey Rebellion" in 1794 and between 1862 and 1872 the activity of the liquor interests against the enforcement of these laws was, in proportion to populations, greater even than is the present fight against the Volstead act and the 18th amendment.

In regard to the situation prevailing between 1862 and 1872 the New York Journal of Commerce, one of the foremost of the commercial publications of the country and which is not a prohibition advocate, gives the following interesting facts:

"In the year 1861 whiskey was not taxed, and the price fell as low as thirteen cents a gallon in the Cincinnati market. In fact, as one of our early economic writers remarked, 'previous to 1860 a man could undoubtedly get drunk in the United States with a less expenditure of money than in any part of the civilized world.' Due to the tax needs of Civil War time, Congress laid a tax of twenty cents per gallon by the act of July 1, 1862, and later raised it successively to sixty cents, \$1.50, and even \$2 per gallon by December, 1864. It is interesting to note that it was found by careful investigation that during the succeeding six years up to 1868 only about fifteen to twenty per cent on the average of all the whiskey manufactured in this country ever paid any tax at all. Even as late as the years 1871 and 1872 the Whiskey Ring and other scandals in our national administration reached a point of rascality and open dishonesty seldom equaled even by the palmiest experiences of the bootleggers of the present day. During the years following the exposure of these scandals there was a gradual stiffening up in the Internal Revenue service, with the final result that, with the exception of certain districts of especial difficulty, the Excise laws were enforced with comparative thoroughness and efficiency. In the light of this experience, ten or fifteen years is not too long a period to attain the efficient enforcement of any Prohibition law, and probably more time will be needed for a stringent measure such as the Volstead act, if ever it is to become effective."

The lawlessness of the liquor traffic, its murderous activities and its effort to control politics, as in the scandal days of 1862 to 1872, when the reputations of many public men were forever ruined, is only in keeping with the lawlessness of the present. But in crushing these activities the mills of the gods may grind slowly but in the end they grind exceedingly fine and civilization each time makes one step forward and buries forever in ruin the reputations of the liquor-interest advocates.

Does CHANCE or CHOICE control your selection of a CLAMSHELL BUCKET



99 times out of a hundred—a clamshell bucket is bought for a *particular use*.

This means a *complete* line of types, and sizes, to meet the conditions of use *correctly*.

And Blaw-Knox Company, appreciating the necessity for fitting the bucket to not only the crane, *but the job*, carries a complete line. That's why the purchasers of BLAW BUCKETS are satisfied users.

Thus—any element of chance entering into the question of your bucket fitting the need is eliminated—that is—if it's a BLAW BUCKET.

The letter illustrated here is a simple story from the City Ice & Coal Co. of Indianapolis—they wanted a bucket for a particular use, and got it. It is this frictionless service to customers

that makes the contrast greater when an inferior bucket is purchased and the trouble begins.

The best proof of BLAW BUCKET quality—long life and few replacements of parts, is the number in daily use in every conceivable line of industry.

BLAW-KNOX COMPANY

624 Farmers Bank Bldg., Pittsburgh, Pa.

New York

Baltimore

Birmingham

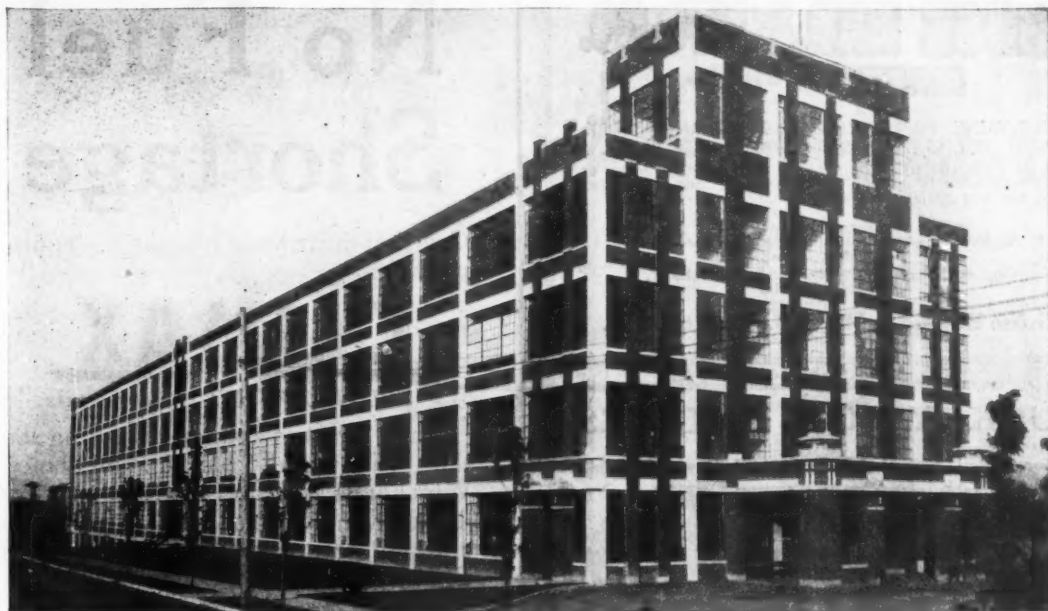
Chicago

Detroit

London, Eng.

The Dreadnaught

Blaw Buckets



The textile mill shown at top of page is the Narrow Fabric Company at Wyomissing, Pa. It was designed by the Textile Machine Works, Reading, Pa., and constructed by Stone & Webster, Inc., New York.

NATURAL daylight cannot be improved upon. Nowhere is it more needed than in the factory. Abundant daylight means health and contentment, greater accuracy in workmanship and better supervision.

Truscon Steel Windows combine the most refined features of engineering and architectural design. This is evidenced by the thousands of buildings in every industry in every part of the country in which Truscon Steel Windows are installed.

The Truscon Steel Company, the largest manufacturers of permanent building products in the world, maintain a large corps of engineers, familiar with every natural daylighting and ventilating problem. Their services are offered to you without the slightest obligation through forty-three engineering offices conveniently located in the principal cities throughout the country.

TRUSCON STEEL COMPANY
YOUNGSTOWN OHIO

Warehouses and Sales Offices in Principal Cities

TRUSCON
STEEL WINDOWS

CHUSE ENG. & MFG. CO.

MATTOON • ILL.

SINGLE VALVE, POPPET VALVE UNIFLOW, AND NON-RELEASING CORLISS ENGINES FOR YOUR POWER PLANT.

Built in sizes 100 to 1000 H.P. for rope drives, belting, or direct connection to saw mills, blowers, mine fans, generating units, air and ammonia compressors.

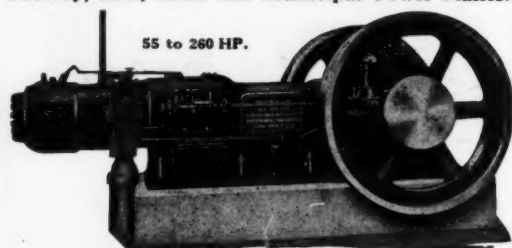
Southern Offices:
B. R. Hoshall—714 Union & Planters Bank Bldg.,
Memphis, Tenn.

Geo. B. Weaver—719 Brown & Marx Bldg.,
Birmingham, Ala.

Chuse Engine & Mfg. Co., Mattoon, Ill.

BUCKEYE OIL ENGINES

for
Factory, Mill, Mine and Municipal Power Plants.



55 to 260 H.P.

THE BUCKEYE MACHINE CO.
LIMA, OHIO.

Manufacturers of



Dry Pans, (3 sizes).
Wet Pans, (3 sizes).
Sewer Pipe Presses, (4 sizes).
Gravity Elevators.
Sewer Pipe Dies.
Feeders.
Conveyors.
Potters Machinery.
Oat Cutters and Hullers.
Rubber Core and Mold Work.

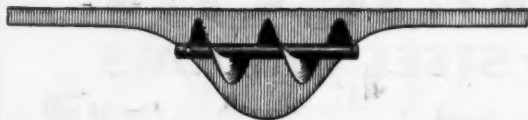
Send for Catalogue No. 31

TAPLIN-RICE-CLERKIN CO., AKRON, O.

HELICOID CONVEYOR

CONTINUOUS flights (without laps or rivets), and heavier flights on larger pipe, make Caldwell Helicoid Conveyor by far the best on the market. It is the recognized standard conveyor of this type.

H. W. CALDWELL & SON CO. LINK-BELT COMPANY. OWNER
Dallas, Texas, 709 Main St.—Chicago, 17th St. and Western Ave.—New York, Woolworth Bldg.



No Fuel Shortage

Can shut down your plant if it is equipped with

CLIMAX

"TRUSTWORTHY" Power Units

Tank Wagons and nearby filling stations will supply fuel in abundance. Why not be prepared to get your power direct from a Climax Engine or to generate all the current you need with a Climax Engine Generator outfit, continuous or alternating current.

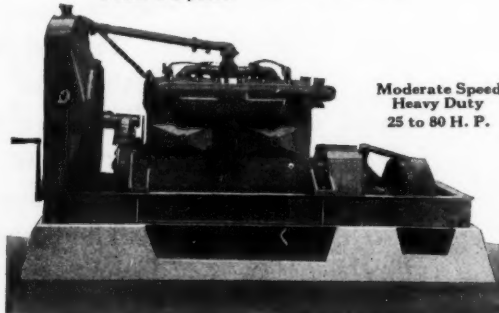
Especially Prompt Shipment
of Emergency Requirements.

Write or wire.

Climax Engineering Company

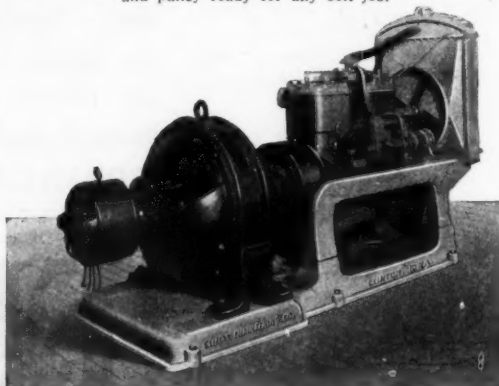
19 West 18th Avenue, CLINTON, IOWA

Makers of Internal Combustion Engines for Automotive and Industrial Power Purposes.

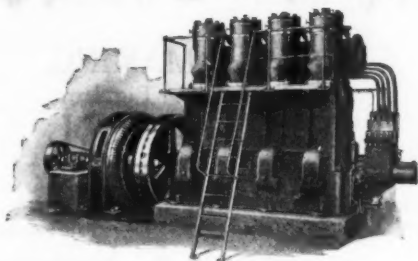


Moderate Speed
Heavy Duty
25 to 80 H. P.

Climax Engine mounted on stationary base complete with radiator and pulley ready for any belt job.



Alternating current Generator with direct connected exciter coupled to Climax Motor T Engine.



Points of Excellence and Distinction

A Diesel engine with typical slow graduated non-explosive combustion
Burns any oil that flows
Low fuel oil consumption
Solid injection of fuel oil
No ignition devices, torches, hot metal or electric wires
Sensitive governor and speed control
No moving parts in spray nozzle except check valves
Cross-head with bored guides
Low lubricating oil consumption
Two-part cylinder head preventing heat expansion stresses
All jackets accessible for inspection and cleaning.

Burns the Oil Doesn't Explode It

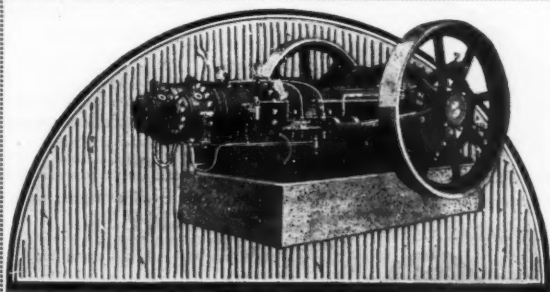
The Worthington Diesel Engine, two cycle—solid injection type, *burns* the fuel oil. There is no racking explosion here, just a smooth even burning of the fuel that pushes the piston along with much the same action as in a steam engine. In other words it works on the full Diesel Cycle.

WORTHINGTON

WORTHINGTON PUMP AND MACHINERY CORPORATION

Executive Offices: 115 Broadway, New York City. Branch Offices in 24 Large Cities

W 152-4



8 Cars of Oil Burned in a Bessemer produce the Same power as **35 Cars of Coal** in a Steamplant

The Bessemer Oil Engine not only saves an average of one-half the cost of steam power but saves additionally in floor space, overhead expense and stand-by losses. Bessemer Power affords clean, steady and safe power that meets the most exacting plant requirements.

Bessemer engines are running today in over 24,000 installations. It will pay you to investigate before coal shortage means a shut down. Write.

THE BESSEMER GAS ENGINE CO.
64 York St. GROVE CITY, PENNA.

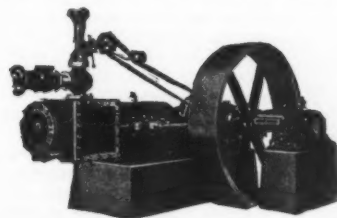
BESSEMER OIL ENGINES

15 TO 180



HORSEPOWER

BROWNELL



Brownell Throttling Engine

Throttling Engines are for ordinary power purposes where the load is fairly constant or close speed regulation is not essential. The Throttling Engine illustrated is only one of many types which The Brownell Company has made for over half a century with continual improvements. A careful selection of the proper type is essential to satisfactory operation. Our engineers are ready to aid you in every way possible.

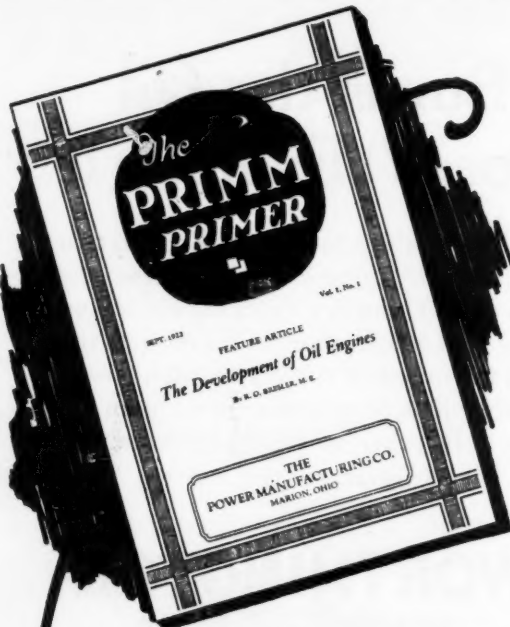
Send for Bulletin E-3

THE BROWNELL COMPANY

DAYTON, OHIO, U. S. A.

ESTABLISHED 1855

ENGINES



Do You Want to be Placed on Our Mailing List?

WE are now publishing an instructive and informative house-organ indicating the great savings to power users through the installation of an oil engine.

We will be glad to place you on our mailing list without obligation if you desire to study the merits, the economies and the efficiency of oil engine power.

This house-organ has been published at the suggestion of hundreds of prospective purchasers who are eager to grasp a more intensive knowledge of the money that can be saved through this time-tested, unfailing method of generating power.

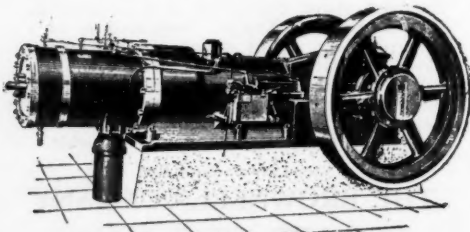
We are the largest exclusive manufacturers of heavy duty oil engines in the country and, as such, we frankly solicit your name through this advertisement.

And, in addition, if you have a power problem which you will submit to us, we will gladly acquaint you with the service oil engines render in an endeavor to help solve your difficulty.

Write us today

POWER MANUFACTURING CO.
105 Cheney Avenue, Marion, Ohio

Branch offices and agencies in principal cities



PRIMM

OIL ENGINES

AN INNOVATION—SEMI-STEEL did it.

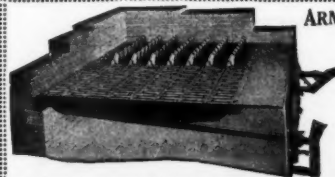
WE ARE MAKING 50% Steel—50% Pig Iron SEMI-STEEL

Thomas W-S-D	Grate Bars—fuel savers	
" Elliptic	" " —steam producers	
" Impervious	" " —trouble bearers	
Common	" " —all patterns	
Boiler Fronts	Arches	Vats
Rims	Pans	Retorts
Plates		Fire Castings

*They are Harder—Stronger—Tougher
—Last Longer—Cost Less.*

Swell the bank account.
Send us your inquiries.

THOMAS GRATE BAR COMPANY
BIRMINGHAM, ALA.



ARMSTRONG INTERLOCKING SHAKING GRATES

cut fuel costs from ten
to forty per cent.
—Prove it—
your plant—our expense
Armstrong Mfg. Company
W. Liberty Street
Springfield, Ohio

CORLISS ENGINES



Boilers of All Styles and Sizes
Murray Iron Works Co.
BURLINGTON, IOWA
Incorporated February 1, 1870

Paul Bigelow, 39-41 Cortlandt St., New York City. W. M. Jackson, Bourne Bldg., Phila., Pa.

Stop the Leaks

In the construction of Dart Unions, the spherically constructed Bronze to Bronze seats eliminate the possibility of a leak. Extra heavy iron ends add strength and durability. Every Union is tested, and we guarantee to replace any defective union returned to us with two perfect ones.

We will mail you a free sample on request.
A shape and size to fit every need.
Flanges, L's, T's, etc.



**DART
UNIONS**

E. M. DART MFG. CO., Providence, R. I.
The Fairbanks Co., Sales Agent.
Dart Union Co., Ltd., Toronto, Canada.

THE BABCOCK & WILCOX COMPANY

85 LIBERTY STREET, NEW YORK

**Builders since 1868 of
Water Tube Boilers
of continuing reliability**

BRANCH OFFICES

BOSTON, 49 Federal Street
PHILADELPHIA, North American Building
PITTSBURGH, Farmers Deposit Bank Building
CLEVELAND, Guardian Building
CHICAGO, Marquette Building
CINCINNATI, Traction Building
ATLANTA, Candler Building
TUCSON, ARIZ., 21 So. Stone Avenue
FORT WORTH, TEX., Flatiron Building
HONOLULU, H. T., Castle & Cooke Building



WORKS

Bayonne, N. J.
Barberton, Ohio

**Makers of Steam Superheaters
since 1898 and of Chain Grate
Stokers since 1893**

BRANCH OFFICES

DETROIT, Ford Building
NEW ORLEANS, 521-5 Baronne Street
HOUSTON, TEXAS, Southern Pacific Building
DENVER, 435 Seventeenth Street
SALT LAKE CITY, 705-6 Kearns Building
SAN FRANCISCO, Sheldon Building
LOS ANGELES, 404-6 Central Building
SEATTLE, L. C. Smith Building
HAVANA, CUBA, Calle de Aguiar 104
SAN JUAN, PORTO RICO, Royal Bank Building



RADIAL BRICK CHIMNEYS ALPHONS CUSTODIS CHIMNEY Construction Company

Also EXPERTS in
Repairing Brick and Concrete Chimneys
Heightening Chimneys
Lightning Rods Installed and Repaired
Work done while chimney is in operation, if necessary
New York Atlanta Richmond Baltimore

RUST CHIMNEYS

RADIAL BRICK AND REINFORCED CONCRETE
REFRACTORY BRICKWORK

**THE RUST ENGINEERING CO.
ENGINEERS AND CONTRACTORS**

Pittsburgh

Washington

Birmingham

FOSTER SUPERHEATERS

A necessity for turbine protection, engine cylinder economy and utilization of superheat for all its benefits.

POWER SPECIALTY COMPANY

Boston, Philadelphia, Pittsburgh, Kansas City,
Chicago, San Francisco, Dallas, London, Eng

111 Broadway, NEW YORK

HARTLEY BOILER WORKS BUILDERS OF HIGH GRADE BOILERS

Stand Pipe, Self-supporting Stacks, Tanks, Towers, all kinds
of Structural and Plate Iron Work, Boiler Fronts, Grate Bars,
all kinds of Castings.

MONTGOMERY

ALABAMA

CHARLESTON DRY DOCK & MACHINE CO.

Successors to VALE & MURDOCH CO.

**MARINE AND STATIONARY BOILERS
Repairs to Steel and Wooden Vessels**

8,000-ton Dry Dock - 1,500 and 600-ton Marine Railways

CHARLESTON, S. C.

ENGINES BOILERS TANKS TOWERS SMOKE STACKS

If you are in the market for the above, get
our prices. We are Southern Manufacturers,
and not only manufacture, but guarantee our
products. We want you to take advantage of
our 50 years' experience.

Write us for further information
and become a satisfied customer.

**SCHOFIELD'S IRON WORKS
Dept. H MACON, GA.**

BOILER TUBES

FOR ALL TYPES OF BOILERS

Especially bent tubes for vertical water-tube boilers

Also carry a large stock of straight tubes.

Write, phone or wire for quotations.

BOILER TUBE CO. OF AMERICA

Main Office:

1228 Park Bldg., PITTSBURGH, PA.

NEW YORK OFFICE:

CHICAGO OFFICE:

1816 Woolworth Bldg.

809 Peoples Gas Bldg.

LONGITUDINAL AND
CROSS-DRUM TYPES
WASTE HEAT BOILERS
ALL CONFORM TO ASME CODE



**HEINE
LARGE
UNIT BOILERS**

Heine Boiler Company

SAINT LOUIS, U.S.A.

BOILER MANUFACTURERS FOR 40 YEARS

Oc
A
ES

Gin Saw Filing
Machine Rods
Go-Carts
Governor Spring
Tubes
Gun Barrels
Gun Carriages
Gas Engine
Cylinders
Gas Main Stoppers
Grinders, Hand
Governors
Gun Barrel Drills
Gravity Carriers
Grates (Bank Vault)
Gas Producer Parts
Grinders
Gear Shaft
Machine Guns
Harrows
(Fire Department)
Hand Excavators
Handles
Handle Bars
Harvester Parts
Hay Press
Horizontal Boilers
Hollow Cast Iron Pipe
Lines
Heaters
Heater Coils
Hoists
Hospital Furniture
Hollow Axles
Hollow Drills
Hollow Piston Rods
Hollow Shafts
Hose Mandrels
Hose Nozzles
Hose Poles
Housings, Straight
Tubular
Housings, Specially
Formed
Hydraulic Dies
Hydraulic Gauge
Tubes
Hydraulic Hoists
or Lifts
Hydraulic Jack
Tubes
Hydraulic Swivels
Hydroplane
Frames and Parts
Hypodermic Needles
Hand Railings
Horse Clipping
Machines
Hubs for Hospital
Carriages
Hammer Drills
Inner Tube Mandrels
Invalid Chairs
Jackshaft Tubes

Jacks
 Jack Spools
 Jogger on
 Press
 Kerosene Be
 (Vaporizer)
 Knife Hand
 Knurled Nu
 Pipe Wren
 Knitting M
 Parts
 Knitting M
 Cylinders
 Laboratory
 Apparatus
 Lamps
 Lamp Tube
 Lap Pins fo
 Spinning I
 Lathe Bear
 Spindles
 Lathe Plum
 Lathe Spine
 Lathe Torc
 Launch Par
 Laundry M
 Lever Shaft
 Light Inspe
 Car Parts
 Locomotive
 Loom Shut
 Loose Leaf
 Ladder Run
 Lawn Mow
 Lubricating
 Manifolds
 Machine To
 Magazine N
 Magazine T
 Mandrels
 Models
 Motorcycle
 and Parts
 Motor Cylin
 Motor Shaft
 Vehicle Mo
 Music Rack
 Muffler Tub
 Metal Furn
 Mortars (F
 Moving Pic
 Apparatus
 Merry-go-ro
 Moving Pic
 Machine Sh
 Marine Boil
 Mill Machin
 Mining Mac
 Meter Mech
 Motor Cross
 Spacers
 Napping M
 Rolls
 Novelties

Send for copy of "National" Bulletin No. 17-

NATIONAL TUBE COMPANY

St. Louis
St. Paul

(Gene
FRIO
PACIFIC

XUM

Telescope Dust
Tubes
Thermometer Cups
Threaded Bushings
for Steering and
Operating Lever
Shafts
Tools
Tools (Diamond
Drilling)
Towel Rack Rods
Torque Tubes
Timing Mechanism
Tumbles
Turbine Engine
Valve Frames
Valve Parts
Valve Seats
Valve Turn-
downs
Valve Work Parts
Vex Piston Barrels
Vibrating Apparatus
Visible Meter
Washers
Washers
Temperatures
Proper Mechanism
Unobscured
Valve Parts
Valve Parts
Vaporizing Coils
Ventilating
Machinery
Vise Screw Collars
Vacuum Cleaner
Nozzles
Vacuum House
Cleaning
Machinery
Valve Stems
Water and Gas
Connections
Weaving Machine
Spindles
Walking Canes
Wall Paper Rolls
Water Meter Test-
ing Machines
Water Heaters
Water Waste
Detectors
Wireless Telegraph
Instruments
Washing Machines
Working Barrels
Warp Beams
Water Guns
Wagon Wheel Rims
Wrenches
Wrist Pins

PACIFIC COAST REPRESENTATIVES: U. S. Steel Products Co., San Francisco, Los Angeles, Portland, Seattle
EXPORT REPRESENTATIVES: U. S. Steel Products Co., New York City

THE YOUNGSTOWN SHEET AND TUBE COMPANY

YOUNGSTOWN, OHIO.

In the great textile mills of the South, placed there by manufacturers of humidifying, heating and sprinkling systems of the highest type, are thousands upon thousands of miles of

YOUNGSTOWN PIPE

There is no better judge of pipe than these firms. Their reputation and business depends upon the use of the best that is to be had, and they investigate the subject thoroughly. They don't guess. They take nothing for granted. They know absolutely what material will give the longest and most satisfactory service.

For use in any system designed for distributing water, steam or liquids of any kind, builders can depend upon "Youngstown" Pipe as the equal of any pipe manufactured anywhere in the world.

THE YOUNGSTOWN SHEET & TUBE COMPANY

YOUNGSTOWN, OHIO

DISTRICT SALES OFFICES:

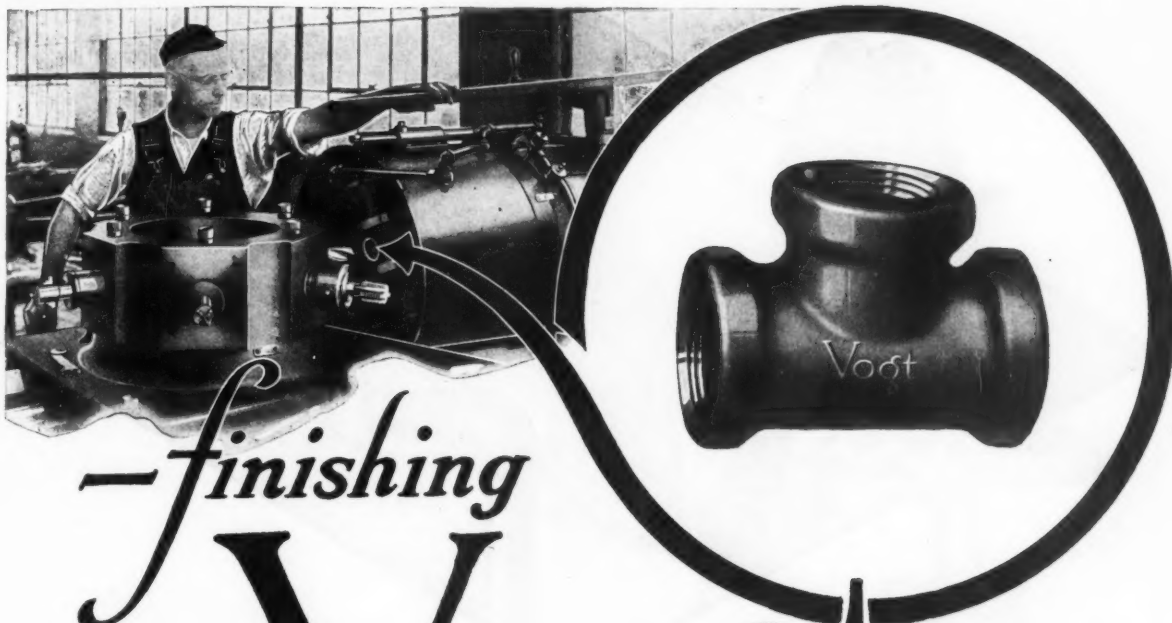
BOSTON—120 Franklin St.
NEW YORK—30 Church St.
PHILADELPHIA—Pennsylvania Bldg.
ATLANTA—Healey Bldg.
PITTSBURGH—Oliver Bldg.
CLEVELAND—Leader-News Bldg.
DETROIT—Dime Savings Bank Bldg.

CHICAGO—McCormick Bldg.
ST. LOUIS—1139 Olive St.
DENVER—First National Bank Bldg.
DALLAS—1401-02 Magnolia Bldg.
SAN FRANCISCO—604 Mission St.
SEATTLE—Central Bldg.

EXPORT SALES AGENT:

Consolidated Steel Corporation, 25 Broadway, New York City

PIPE - SHEETS - PLATES - BARS
WIRE FENCING YOUNGSTOWN NAILS - HOOPS
ARMORED CABLE



-finishing
Voegt
DROP FORGED & STEEL
VALVES *and* FITTINGS

Strength is their dominant feature. These fittings are first forged from solid steel bars—then drilled and threaded in finishing machines. This leaves a completed fitting of homogeneous steel structure, which will withstand working pressures up to 10,000 pounds per square inch.

Vogt Fittings when properly installed in your plant will not leak. Their endurance assures less danger from fire, and are a protection to property as well as to human life. Their use means practical economy in your plant. They are especially recommended for use in high temperatures and pressures of oils, combustible gases, vapours, ammonia, water, air, steam and superheated steam. Let them prove their worth to you.

Bulletin and Sample Fitting Sent Free on Request

HENRY VOGT MACHINE COMPANY

INCORPORATED

LOUISVILLE, KY.

BRANCH OFFICES: NEW YORK, CHICAGO, TULSA, DALLAS

Vogt Fittings can be Purchased From Our Agents

Metalwood Mfg. Co., Detroit, Mich. John Simmons Co., New York, N.Y. Walworth Mfg. Co., . . . Chicago, Ill.
 Pitts'gh Valve, Fdy. & Const. Co., Pitts'gh, Pa. Walworth Mfg. Co., Boston, Mass. Walworth Mfg. Co., Seattle, Wash.

MANUFACTURERS OF DROP FORGED STEEL VALVES AND FITTINGS :: WATER TUBE AND HORIZONTAL
 RETURN TUBULAR BOILERS :: OIL REFINERY EQUIPMENT :: ICE AND REFRIGERATING MACHINERY





Sectional View Fig. 106, Jenkins Standard Brass Globe Valve with Jenkins Renewable Disc.



"Give me a genuine Jenkins every time—

and I know I'm getting a valve that will give me the service."

The man who knows valves and what they are called upon to do wants the *real* Jenkins Valve—the valve made by the originators, and backed by their 58 years' valve manufacturing experience.

Genuine Jenkins Valves go into service and *stay*. The many engineers who standardize on Jenkins find a true economy in their choice.

Valves for all requirements. You'll recognize the genuine by the well known symbol—Jenkins Diamond and signature. Supply houses everywhere.

JENKINS BROS.

New York
Montreal

Boston

Philadelphia

Chicago
London

Jenkins Valves
SINCE 1864

2523-J

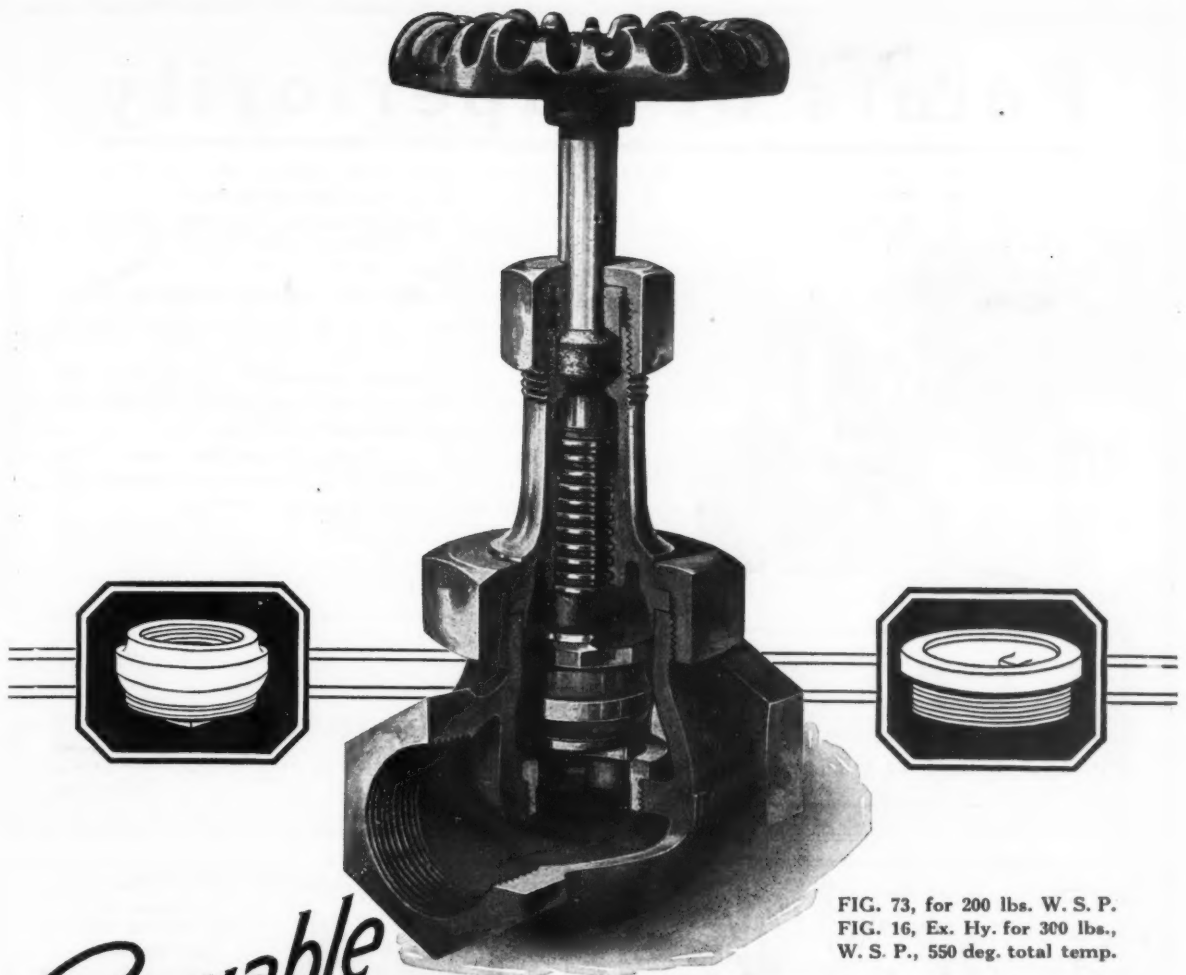


FIG. 73, for 200 lbs. W. S. P.
FIG. 16, Ex. Hy. for 300 lbs.,
W. S. P., 550 deg. total temp.

Renewable
"VALVE NICKEL"
Disc and Seat

LUNKENHEIMER

"Renewo" Valves are the climax in the evolution of valve design from the old style soft seat valve for low pressures to the present day high pressure and temperature valve.

The "Valve-nickel" seat ring and disc in "Renewo" Valves have unusual wear resisting qualities under extreme operating conditions. When wear does occur the seating surfaces can be reground or the seat ring and disc can be renewed. With all other parts

made of high grade bronze, formulated for the duty each part performs, the life of the valve is prolonged indefinitely.

"Renewo-equipped" means permanence, and represents an investment unparalleled in point of value to the purchaser seeking the highest degree of efficiency and economy in valve service.

Booklet 535-FB lists and describes the full range of types, sizes and weights of patterns available. Write for a copy.

THE LUNKENHEIMER CO.

"QUALITY"

LARGEST MANUFACTURERS OF
HIGH GRADE ENGINEERING SPECIALTIES
IN THE WORLD

NEW YORK CHICAGO CINCINNATI, U.S.A. BOSTON LONDON

EXPORT DEPT. 129-135 LAFAYETTE ST., NEW YORK

126-6-2

"America's Best since 1862"

Points of Superiority



**Minimum space for installation.
Less operating attention.
Stuffing Box Leakage minimized.
Positive force feed lubrication.**

YORK Enclosed Single-Acting Refrigerating Machines are ideal for plants where large capacity is required and only a limited amount of space available. They are compact in design and construction—a feature which lowers the cost of foundation and buildings.

These machines require but little attention and frequent adjustments are unnecessary. The forced feed system of lubrication reduces the duties of the operator to a minimum.

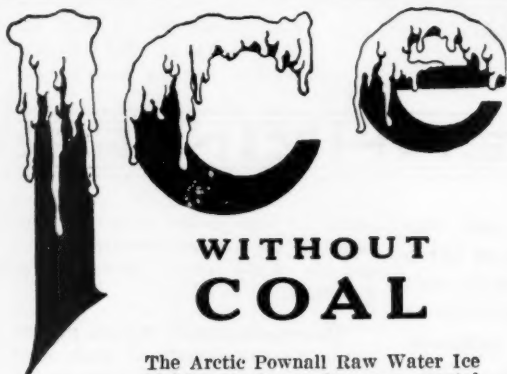
The specially designed Stuffing Box, which is subject to low pressure only, and is always oil sealed, practically eliminates the loss of ammonia through stuffing box leakage.

Lubrication is provided by a Positive Force Feed system. The oil is flooded on the bearings in a continuous stream—the lower part of the crank case serving as a reservoir.

Owners and operators, everywhere, are testifying to the simplicity and efficiency, the low operating costs and splendid performance of their York Enclosed Single-Acting Machines.

Investigate the performance of this machine. The location of the plants in your vicinity where this type of compressor is in operation will be gladly furnished upon request. Write for detailed information and prices.

YORK MANUFACTURING COMPANY
Ice Making and Refrigerating Machinery Exclusively
YORK, PENNA.



**WITHOUT
COAL**

The Arctic Pownall Raw Water Ice Making System makes pure, crystal clear ice, using any motive power.

The ice produced is superior to that made by any other system.

Every block is uniform in size and weight, and the tops are absolutely level.

This system also requires less labor than any other; and while the initial cost is higher, the cost of making ice with this system is far less than any other, consequently greater returns on the investment are assured.

It will pay you to write us.

THE ARCTIC ICE MACHINE CO.
CANTON, OHIO, U. S. A.

THE VILTER MANUFACTURING CO.

832 Clinton St.
MILWAUKEE, WIS.

**Ice Making
Refrigerating Machinery
Poppet Valve and
Corliss Engines
SPECIAL MACHINERY**



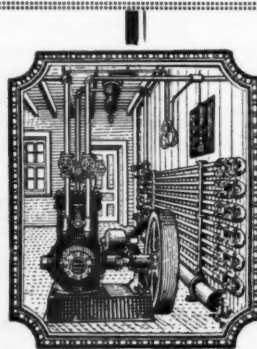
SOUTHERN ICE MACHINE COMPANY

Manufacturers of

**Ice Making and Refrigerating
Machinery**

Charlotte,

North Carolina



BAKER Ice Machines

When ice is used for refrigerating purposes, Mechanical Refrigeration will reduce the cost from 25% to 50%.

For manufacturing ice we guarantee that the Baker is one of the most economical to operate.

Address Dept. C
Baker Ice Machine Co.
Omaha, Neb.



"SERVICE CROWN"
"A A A"
"B B B"

These are the only
CANNELTON Fire Brick Made

We are exclusive manufacturers

Write for sample and prices

CANNELTON CLAY PRODUCTS CO.

Office and Factory:
CANNELTON, INDIANA - U. S. A.



**FIRE BRICK
FIRE CLAY**

CANNELTON SEWER PIPE CO.
CANNELTON - INDIANA - U. S. A.



**GRAVITY FILTERS PRESSURE
WATER SOFTENING PLANTS and HYPOCHLORITE APPARATUS
ALL VARIETIES OF
CHEMICAL FEEDING DEVICES**

Write for Bulletin 22-3

THE NEW YORK CONTINENTAL JEWELL FILTRATION CO.
NUTLEY, N. J.

Member Associated Manufacturers of Water Purifying Equipment

WE-FU-GO AND SCAIFE

WATER

PURIFICATION SYSTEMS
SOFTENING & FILTRATION
FOR BOILER FEED AND
ALL INDUSTRIAL USES

WM. B. SCAIFE & SONS CO. PITTSBURGH, PA.

**ROBERTS FILTERS
FOR
CLEAN WATER**

Ideally adapted for installation in textile mills; raw water ice plants; laundries, and for all industrial or municipal requirements.

"Write for Descriptive Literature."

Roberts Filter Manufacturing Co.

DARBY (PHILA.) PENNA.

NEW YORK OFFICE—FLATIRON BUILDING.

**"HYTEST"
FIRE BRICK**

SEWER PIPE

FLUE LINING

STEVENS BROS. & CO.

ATLANTA

STEVENS POTTERY, GA.



PLIBRICO

FOR BOILER SETTINGS and BAFFLES
BETTER THAN FIRE-BRICK

Can Be Installed By Inexperienced Labor
Will Withstand 3100 Deg. Temperature -
Shipped in Steel Containers only

JOINTLESS FIRE BRICK CO.

OFFICE and FACTORY 1132 CLAY ST. CHICAGO

THE CAMBRIA CLAY PRODUCTS CO.
MANUFACTURERS

SEWER PIPE - FLUE LINING - WALL COPING
FACE BRICK - FIRE BRICK - FIRE CLAY

HOLLOW BUILDING TILE

Office and Works - BLACKFORK, OHIO

A. P. Green
DAILY CAPACITY 150,000
Fire Brick
MEXICO, MISSOURI

**WALSH FIRE BRICK
AND SHAPES**

WALSH FIRE CLAY PRODUCTS CO.

ST. LOUIS, MO.

CHICAGO

NEW YORK

**"Mount Savage"
Fire Brick**

UNION MINING COMPANY

Plant:
Mount Savage, Md.

Gen'l Office:
Baltimore, Md.



**FIRE BRICK
FIRE CLAY**

SPECIAL SHAPES

HOWARD REFRACTORIES CO.
DORSEY, MD.

WRITE FOR PRICES

**FOR INDUSTRIAL, RAILROAD,
MUNICIPAL AND OTHER USES**

FILTERED

WATER

SOFTENED

Softeners or Filters of any type or capacity as separate or combination Systems.

AMERICAN WATER SOFTENER COMPANY

S. E. Cor. 4th & Lehigh Ave.

Philadelphia

IDEAL MOTORS

The result of years of experience in building electric motors for every purpose.

Made in all standard sizes from 1 to 1000 H. P.

Write our engineering department about your power requirements.—Bulletins on request.

The **IDEAL ELECTRIC**
& Manufacturing Co. Mansfield Ohio



REBUILDING ELECTRICAL PAIRING MACHINERY BUILDING

OUR specialty is rebuilding and long experience has made us experts at judging the repairs needed to make old equipment new.

The experience gained in more than a quarter of Century repairing and rebuilding together with the best apparatus to be had for handling and listing high grade electric equipment qualifies us to serve you satisfactorily and efficiently.

Send it to us. We ship it back like new. Surprising the amount of money we can save you on equipment in a year's time.

Chattanooga ARMATURE WORKS.
Chattanooga, Tenn.

CRANE CHECK VALVES

CROCKER-WHEELER MOTORS

Niagara's Rival Dependable Power

CROCKER-WHEELER CO., Ampere, N.J.



TOOLS POWERFUL PNEUMATICS EFFICIENT ELECTRICS

Be right the first time—Use Thor Tools
INDEPENDENT PNEUMATIC TOOL COMPANY
600 WEST JACKSON BOULEVARD, CHICAGO
NEW YORK BOSTON PHILADELPHIA PITTSBURGH CLEVELAND DETROIT
ST. LOUIS BIRMINGHAM SAN FRANCISCO MONTREAL LONDON, ENG.

ELECTRICAL SUPPLIES WHOLESALE

DOUBLEDAY-HILL ELECTRIC CO.

Southern Warehouse Washington, D. C.
Lowest Prices Quality Considered



Electrical Machinery Repaired

Motors Generators Armatures
Pumps Rewound and Repaired

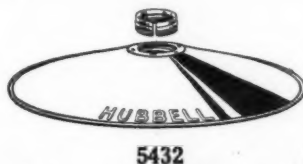
CHARLOTTE ELECTRIC REPAIR CO.
CHARLOTTE, N.C.



HUBBELL



This enamelled cone reflector prevents waste of light and directs it properly upon the work. Made in 8", 10", and 12" sizes.



This type of reflector may be used where a very wide distribution of light is necessary. 8", 10", and 12" sizes.

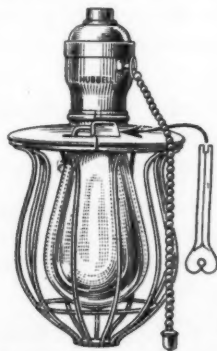


6151



5429

For close work requiring accuracy and precision, these half reflectors are the thing. No. 5429 is standard size for 25 to 60 Watt Lamps; No. 6151 is small size for 10 and 15 Watt Lamps.



5685

This *locking* lamp guard is the best lamp insurance you can buy. It protects your bulbs from both theft and breakage. Type 5685 is for Brass Shell Sockets and Type 5730 is for Porcelain and Weatherproof Sockets.

HARVEY HUBBELL INC.
ELECTRICAL SPECIALTIES
BRIDGEPORT CONN. U. S. A.

ELECTRICAL SPECIALTIES

2312-U

AMERICORE RUBBER COVERED WIRE

"Americore" Rubber Covered Wire, in all sizes for interior wiring, has all the desirable qualities of a new code wire. It meets the highest requirements of National Electrical Code and is recommended by leading engineers for all service conditions in which working pressure is 7,000 volts or under. **Americore** quality and service are proven by years of catering to the most exacting users and the strictest specifications.

Manufactured by

AMERICAN STEEL & WIRE COMPANY

Special Illustrated Catalogue Free

Complete stocks carried in our warehouses in leading cities of America.

BALTIMORE SALES OFFICE
AND WAREHOUSE

32 S. CHARLES ST.

A large percentage of American industries are not yet equipped with machines which save others 10 to 80 per cent on material handling costs

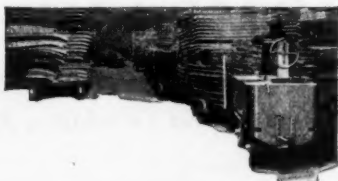


Low platform truck equipped with G-E automobile type motor

Opportunities on Wheels



G-E motor-equipped elevating platform truck picking up loaded skid platform



G-E motor-equipped tractor hauling heavily loaded trailers

REAL economies are brought to factory and warehouse where electric trucks and tractors are operated. These little machines in industries of this country to-day are helping to clear the where-to-reduce-expense tangle.

Fifty tractors each with twelve trailers handle 2,600 tons a day in a Chicago plant covering thirty-nine acres. Each train paid for itself in one year by its economies.

Tractors and trucks in a variety of types equipped with G-E driving, elevating and control equipment have proved satisfactory wherever used. They offer every industry expense-reducing opportunities.

Prominent manufacturers of trucks and tractors use G-E motors and control and co-operate with the material handling specialists of the General Electric Company in designing and building the most improved machines.

General Electric Company

General Office
Schenectady, N.Y.

Sales Offices in
all large cities 43B-576

Samson Braided Cord



is adapted to many special purposes in connection with manufactured products wherever a smooth, round, firm cord is required. It is far more durable in running over pulleys and for many other uses than twisted cord, chain, wire or leather.

Samson Cord

is used extensively in connection with the manufacture of automobile accessories, bags, books, drums, electrical supplies, garters, horse equipment, safety devices, shoes, suspenders and a great many others. About the factory itself, it is used with drives, dampers, elevators, fire doors, hoists, windows, ventilators, etc.

It is made in all colors, from 1/32-in. to 1 1/4-in. diameter in hard and soft braid, glazed, unglazed or waterproofed finish, with or without wire center. Special cord for special uses.

Samples and further information gladly sent on request.

Samson Cordage Works
Boston 9, Mass.



MACHINE BRONZE

Solid and Cored Bars
in 12" Lengths

*Here's
Better
Bearing
Service*



Stocked by us in convenient sizes for immediate delivery.

Ask for list giving sizes and weights

SMITH-COURTNEY COMPANY
SUPPLIES AND MACHINERY, RICHMOND, VA.

HERRINGBONE CUT GEARS

MILL
DRIVES



SPUR
WORM
BEVEL GEARS

SPEED REDUCERS

FAWCUS MACHINE CO., PITTSBURGH, PA.
So. Agents: G. R. MUELLER Co. BIRMINGHAM, ALA.



The Electrical Building, 625 W. Jackson Blvd., Chicago

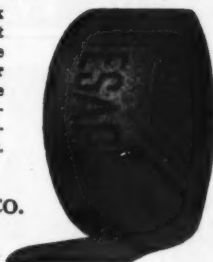
For Efficiency Always

CHESAPEAKE STITCHED CANVAS BELTING

Manufactured from 32-oz. duck and designed to give the best results in actual service. Made for all conditions of power transmission—inside or outside—wet or dry. Chesapeake Belting has been giving satisfactory service for over 30 years.

Write for printed matter.

CHESAPEAKE BELTING CO.
BALTIMORE, MD.



PURE
OAK
TANNED

FOR

LEATHER BELTING

ACID
WATER
STEAM
PROOF

THE DRUID OAK BELTING COMPANY
(INC.)

BALTIMORE, MD.

BALTIMORE BELTING CO.

Manufacturers of

OAK TANNED LEATHER BELTING,
LACED LEATHER AND SUPPLIES
BALTIMORE, MD.

U. S. Oak Tanned Leather Belting

Hippo Waterproof Leather Belting

Having our own belt shop, we can guarantee our product and our deliveries.

Unexcelled for use in damp and steamy places.

BELTING CEMENT and DRESSING
OLD LEATHER BELTING RENOVATED and MADE OVER

MILL SUPPLIES, TOOLS and MACHINERY
Large and Complete Stocks

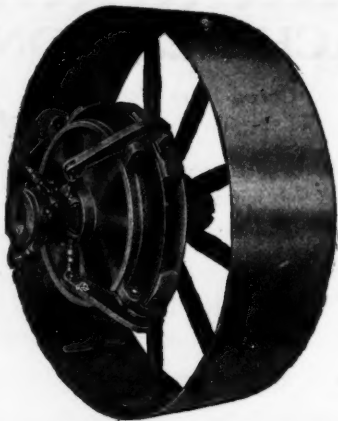
REED & DUECKER, Memphis, Tenn.

Yolande Coal & Coke Company

HIGH-GRADE 72 HOUR FOUNDRY COKE
WASHED and SIZED BLACKSMITH COAL

Mines and Ovens at Yolande, Ala.

General Office: Brown-Marx Building
BIRMINGHAM, ALA.



MEDART

V-Groove Friction Clutches

Easy to install—economical to maintain. Built either solid or split, with removable, extended sleeve. No shock or jar in starting. Send for booklet, "The Clutch that Clutches"—a treatise on friction clutches and their economical application to industry.

THE MEDART COMPANY

(Formerly Medart Patent Pulley Co.)

General Offices and Works: St. Louis, U. S. A.

Office and Warehouse: Cincinnati

Offices: Chicago and Philadelphia

MEDART means EVERYTHING in LINE SHAFTING EQUIPMENT

Goldens' Foundry & Machine Co.

COLUMBUS, GEORGIA

MANUFACTURERS OF

MACHINE MOULDED PULLEYS

HANGERS

SHAFTING

Couplings, Pillow Blocks, Floor Stands, Collars, Etc.

Send for Price List and Discount Sheet

"The Reeves"

Variable Speed Transmission

will give you any speed you want in a moment without stopping your machine.

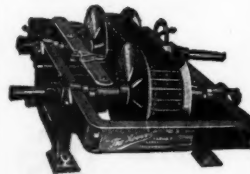
It will increase your output, save labor, improve workmanship.

Can be profitably used on any machine requiring speed changes.

Ask for Catalog T-21

REEVES PULLEY CO.

Columbus, Ind.



WELLER FRICTION CLUTCHES



WELLER EXPANSION FRICTION CLUTCHES

SIMPLEST, MOST POWERFUL CLUTCH MADE
ONE POINT OF ADJUSTMENT—NO
ATTENTION REQUIRED
HAS VERY FEW PARTS—NO
OIL REQUIRED

IT MAKES NO DIFFERENCE WHETHER THIS CLUTCH IS IN A DRY, WET, CLEAN OR DIRTY PLACE, IT CAN BE COVERED WITH DUST AND DIRT AS IN A CEMENT OR STONE CRUSHING PLANT OR WATER CAN BE DRIPPING ON IT AND IT WILL DO THE WORK JUST THE SAME.



WE ALSO MAKE A COMPLETE LINE CONVEYING AND POWER TRANSMITTING MACHINERY.

WRITE FOR PRICES

WELLER MFG. CO.

1820-1856 N. Kostner Ave.

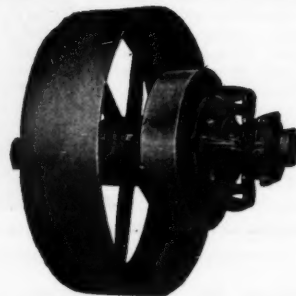
CHICAGO, ILL.

SALES OFFICES

NEW YORK BOSTON BALTIMORE CLEVELAND
PITTSBURGH SALT LAKE CITY SAN FRANCISCO

PULLEYS HANGERS

The **W^{T.B.} WOOD** Line
SONS CO.



The "Universal Giant" is a thoroughly modern Friction Clutch complete within itself. It does not require specially constructed appliances to be fitted to it. Any ordinary pulley of proper bore will answer.



T. B. WOOD'S SONS CO.
Chambersburg, Pa.

POWER TRANSMITTING MACHINERY

CLUTCHES

COUPLINGS

CRESSON-MORRIS

POWER TRANSMITTING MACHINERY

TAX EXEMPT

Every ounce of power absorbed by faulty transmission machinery is a tax on production.

Hour by hour, day by day, this tax goes on—if unobserved or unattended it may mean reinvestment in repairs.

Cresson-Morris Transmitting Machinery delivers Tax Exempt Power. There is no useless friction, no wasted effort, no invitation to graver losses.

In sixty years of building better equipment we have learned much about real power transmission efficiency. That knowledge is at your service.

An experience of over sixty years has been built into the Cresson-Morris Line of Power Transmission Machinery—a complete line from which your every Power Transmission requirement can be met. For advice and co-operation on your transmission problems, Cresson-Morris Engineers are always at your service.

Cresson-Morris Company

Engineers—Founders—Machinists

18th St. & Allegheny Ave. Philadelphia, Pa.

Branch Office: 141 Milk St., Boston, Mass.



Cresson-Morris Plant, Philadelphia, Pa.

A FIRM OFFER

Petroleum Products refined from the best of crude.

Sold on specification and guaranteed.

Service which means complete satisfaction.

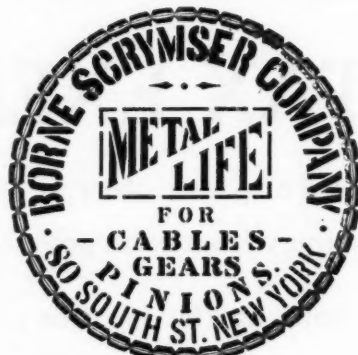
WARNER

PETROLEUM COMPANY, Inc.

ARCADE BLDG. SAINT LOUIS



You Pay
High Metal Cost
So Why Not Get
Real Metal Life



We are now Protecting the
Largest Gear Sets
Operating
BORNE, SCRYMSER COMPANY
80 SOUTH ST., New York

There is MORE POWER in
THAT GOOD GULF GASOLINE
AND SUPREME AUTO OIL

*Look for the Sign
Of the Orange Disc*

GULF REFINING CO.

ROBINSON OILS

"they lubricate more and outlast other oils"

WM. C. ROBINSON & SON CO.
ESTABLISHED 1832

Main Office: BALTIMORE, MD.

Refinery: CORAOPOLIS, PA.

BRANCHES IN 20 CITIES

SAPULPA REFINING CO.
TANK CAR SHIPMENTS ONLY

FUEL OIL

GASOLINE



GAS OIL

KEROSENE

LUBRICATING OILS

Sales Department

First Nat'l Bank Bldg.

Tulsa, Okla.

THE FUNCTION OF DIXON'S BOILER GRAPHITE

is to help you clean your boilers thoroughly and easily. Its action is not chemical, in fact it protects metal from any corrosive agents in the feed water. Particles of graphite simply work their way through the minute fissures in the old scale and gradually penetrate between the scale and the metal. The old scale eventually lessens; new scale cannot burn fast to the metal, and is therefore easily dislodged with cleaning tools.

We know that Dixon's Pioneer Boiler Graphite will

Lesson the time required for cleaning,
Increase steaming capacity,
Reduce fuel consumption,
Prevent pittings,
Minimize repairs,
Improve the operation of feed pumps,
Not injure valves and gaskets on steam lines,
Prolong the life of boilers.

Dixon's Pioneer Boiler Graphite is not to be confused with ordinary boiler graphite. It is a safe, common-sense treatment for scale. It is so cheap and so effective you cannot afford to pass it up without a trial. Write for Booklet No. 80-B.

JOSEPH DIXON CRUCIBLE CO.

Jersey City
N. J.

Established 1827



Albany Grease

Registered U.S. Patent Office

"All Men Know It—
Knowing Men Use It"

A barrel of it lasts longer than any other grease because it is all lubricant, and when used on bearings does not drip or waste away.

Albany Grease will keep sweet and pure in any climate. It will not spoil.

You are playing it safe when you ship with Albany. Your dealer stocks it because he knows it's good. Ask him, or write us for a sample and test it for yourself.



Adam Cook's Sons
708-710 Washington St., N. Y.

A MARK
known and respected
around the world
— Since 1868 —
for fair dealing,
a quality product
and an
unexcelled service.



WHEN you buy hoists—buy the Wright
Highspeed.

It's the most reliable, speediest, safest, and
easiest operated one-man hoist that you can get.
All steel construction with large overload
capacity.

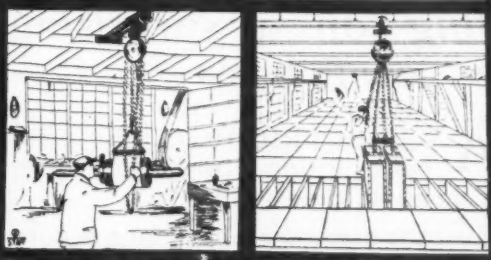
Built in sizes from 1/4 to 30 tons. Investigate
and be convinced.

We have the proof. Shall we send it?

WRIGHT

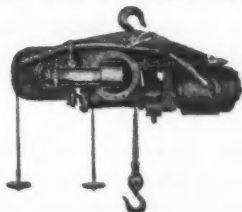
MANUFACTURING COMPANY

LISBON, OHIO.



THE EVEREDY

E
L
E
C
T
R
I
C



H
O
I
S
T

Low Priced Quick Speed Light Weight

Send For Information

READING CHAIN & BLOCK CORPORATION
READING - - - PENNA.



TRADE MARK REG.
U. S. PAT. OFFICE

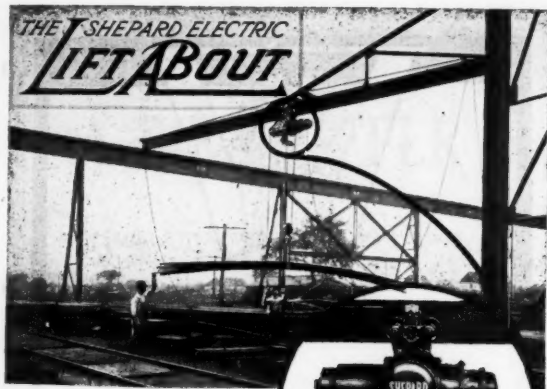
PORTABLE ELEVATOR

The best piling machine
you can get.

Ask for Catalog 92-B

New Jersey Foundry & Machine Co.
90 West Street, New York

BRANCH OFFICES: 156 Second Street, San Francisco, Cal.
126 North 10th Street, Philadelphia, Pa.



You can put your load—moving and lifting on a surprisingly low cost basis

AN ELECTRIC HOIST for you—power lifting with its consequent economy in time and labor.

"Just the method we have long needed. We are moving and lifting our loads for less than we ever anticipated"—that's the consensus of opinion of the hundreds now using *LiftABOUTs*.

A *LiftABOUT* is low in first cost—made possible by standardized manufacture and quantity production. Its maintenance is negligible. Easily and quickly installed.

Incorporated in the *LiftABOUT* are the same features that have made "Shepards" so well known and so widely used.

$\frac{1}{2}$ and 1 ton capacities for alternating or direct current.

Your first step toward low cost load-moving and lifting will be a request for our bulletin. **DO IT TODAY.**

"Shepard" also builds electric cranes and hoists in capacities to 30 tons.

SHEPARD ELECTRIC CRANE & HOIST CO.
362 Schuyler Avenue - - - Montour Falls, N. Y.
Branches in Principal Cities
Member Electric Hoist Manufacturers' Assn.



Punches,
Shears,
For
Sheet



Bending
Rolls, etc.,
Fabricating
Metals

Let Us Know Your Requirements

**GREY IRON CASTINGS TO 20 TONS
BRASS CASTINGS TO 1000 LBS.**

Send Blue Prints for Estimates

COVINGTON MACHINE COMPANY, Inc.
COVINGTON, VA.

SMALL TOOLS

We manufacture and stock—
Taps—For all purposes and forms of thread.
Dies—As complete a line as our taps
Reamers—Plain and adjustable.
Counterbores—Regular and interchangeable.
Die stocks and sets.

Hobs—Pipe, roll threading—thread milling.

Threading Tools and Holders.

Milling Cutters—All commercial types and sizes.

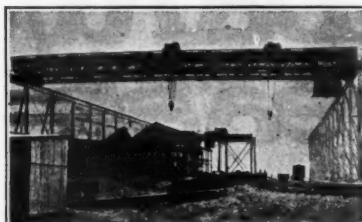
PRATT & WHITNEY CO.

WORKS: HARTFORD, CONN.
111 BROADWAY NEW YORK



BIRMINGHAM, ALA.
2015 FIRST AVE.

CHESAPEAKE CRANES



110-ft. Span Chesapeake Crane—1 of 4 Chesapeake Cranes at plant General Electric Co., Baltimore, Md.

"THE MOST
RUGGED CRANE
BUILT"

STEEL
STRUCTURES—
BRIDGES

"STEEL
—UMBER"

GENERAL
MACHINE
WORK

CHESAPEAKE IRON WORKS
BALTIMORE, MD.

NEW YORK OFFICE, SINGER BUILDING



Electric Traveling
Hand Traveling
Grab Bucket Cranes

Jib Cranes
Electric Hoists
Chain Hoists

"BUILT WITH THE EXPERIENCE OF YEARS"

Established 1878



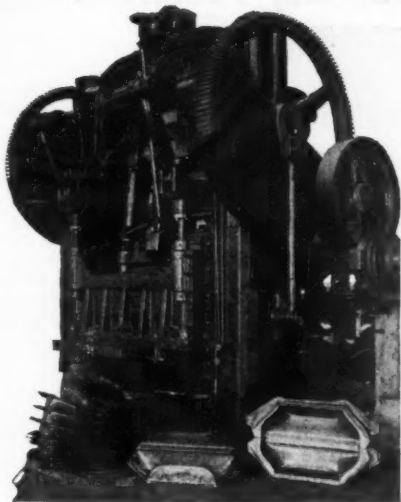


Photo by courtesy of our customer

PATENTED

Drawing Two Cowls



BLISS PRESSES are widely used in the manufacture of automobile parts. They have had such an important part in making the pleasure car the light and strong vehicle it is to-day, and the motor truck the powerful and dependable factor in transportation that much need not be said as to their merits in the Automotive Industry.

The BLISS No. 409-D Patented Double Crank Toggle Drawing Press shown is producing two cowls at one time. BLISS Presses economically meet every stamping need in the manufacture of automobile parts.

— Bliss for Machinery —

E. W. BLISS CO.

MAIN OFFICE
AND WORKS

BROOKLYN, N. Y., U. S. A.

SALES OFFICES: DETROIT (Dime Bank Bldg.), CLEVELAND (Cleveland Discount Bldg.), CHICAGO (Peoples Gas Bldg.), PITTSBURGH (Oliver Bldg.), ST. LOUIS (Boatmen's Bank Bldg.), BUFFALO (Marine Bank Bldg.), CINCINNATI (Union Trust Bldg.), NEW HAVEN (Second Nat'l Bank Bldg.).

American Factories: BROOKLYN, N.Y. HASTINGS, MICH. CLEVELAND, OHIO. SALEM, OHIO.

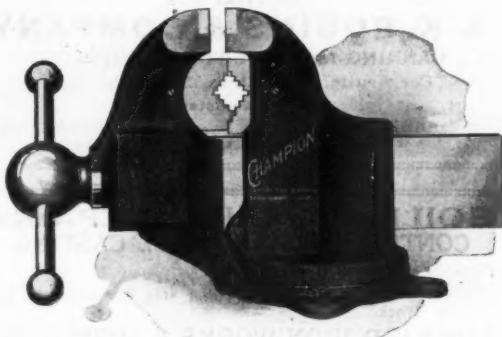
FOREIGN SALES OFFICES AND FACTORIES:

ENGLAND, Pocock St., Blackfriars Rd., S. E., London

ITALY, 345 Via Nizza, Turin

FRANCE, 54 Blvd. Victor-Hugo, St. Ouen, Paris

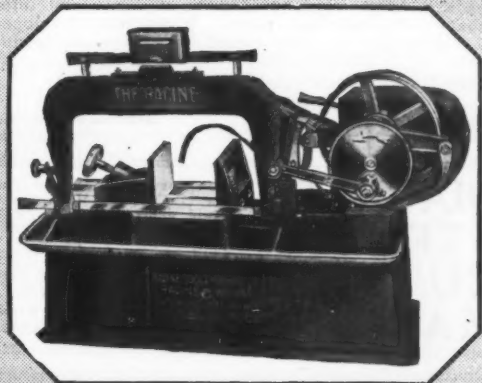
No. 315



PIPE VISE

We make a full line of machinists vises. We also make the well-known tool room adjustable vise; that line which raises, lowers and turns. It locks itself in two ways, and in any position desired. Please write for catalog, which is sent free. Our prices are right and the vises are guaranteed.

Western Tool & Manufacturing Co.
SPRINGFIELD, OHIO



"RACINE" High Speed METAL CUTTING MACHINES

Accuracy and Speed

Racine High Speed Metal Cutting Machines are more accurate, more economical, and work faster than ordinary power "hack saws" due to the fact that the "Racine" positive lifting device keeps the saw blade well clear of the work on the non-cutting stroke. Simplicity and rugged construction are features that also add to the efficiency and long-life of Racine machines.

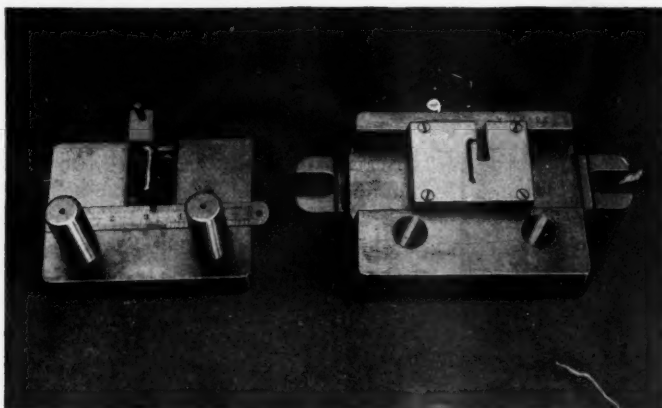
Get our catalog and prices before you invest in metal cutting equipment.

RACINE TOOL & MACHINE CO.
Catalog M. R.
RACINE, WIS.

Mechanical Lift-Positive Draw Cut

Bethlehem Tool Room Oil Hardening Tool Steel

**Sales
Offices:**
New York
Boston
Philadelphia
Baltimore
Washington
Atlanta



**Sales
Offices:**
Pittsburgh
Cleveland
Detroit
Chicago
St. Louis
San Francisco

Illustration shows a punch and die used in the manufacture of small typewriter parts. The thin irregular shape of this punch and die shows this steel to be equally as well adapted for the manufacture of small intricate parts as for large irregular shapes.

Bethlehem Tool Room Oil Hardening Tool Steel is the most economical steel for general tool room work and is recommended for Punching, Blanking, Trimming, Sub-press, Forming and Drawing Dies, Taps, Reamers, Broaches, Circular Cutters, Hobs, Master Tools of all kinds, and Plug and Ring Thread Gauges.

"Tool Steel Catalog" Sent on Request

BETHLEHEM STEEL COMPANY

General Offices: BETHLEHEM, PA.

We are manufacturers of high grade special and automatic machinery. We also manufacture special dies, tools, fixtures and gauges, also duplicate and interchangeable machine parts. Inventions developed, models made and standardized for commercial production.

Send blueprints and specifications for estimates.

UNIVERSAL MACHINE COMPANY
Industrial Building Baltimore, Maryland

DIAGRAPH STENCIL- CUTTING MACHINE

To prove that the Diagraph Stencil-Cutting Machine will avoid delay and much of the loss and damage resulting from improper marking of shipments we will gladly send one to you on trial—we pay the freight—buy it if you like it—otherwise return it at our expense.

J. R. REGNAS & CO.
Diagraph Stencil Machine Branch
12 TIFT STREET ATLANTA, GA.

(Established 1885)
A. K. ROBINS & COMPANY
CANNING MACHINERY AND SUPPLIES
For Fruits, Vegetables, Sea Food, Etc.
Write for Catalog
116 MARKET PLACE BALTIMORE, MD.
"IF IT'S FOR A CANNING FACTORY, WE HAVE IT!"

BOILERS - FLUES - REPAIRS CONTRACTORS AND MILL CASTING

Capacity Boring Mill up to 20 ft.
Lathes up to 62 in. x 25 ft.
100 Large and Small Machines and Men for New and Repair Work.

LOMBARD IRON WORKS & SUPPLY CO.
AUGUSTA, GA.

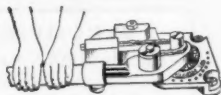
BAR BENDERS

Made entirely of Electric Steel
Weighs only 70 lbs.

Will bend cold any size up to
1 1/4" Rounds and 180° hooks

SEE NEXT WEEKS AD.

ELECTRIC WELDING CO., PITTSBURGH, PA.



MACHINERY AND SUPPLIES

Hercules Wire Rope Skidding Blocks
Worthington Pumps Metropolitan Injectors
Powell & Jenkins Valves Pipe & Fittings
Transmission Machinery Shafting
Ames Shovels Wheelbarrows
Nagle Boilers & Engines

Catalogs on Request

THE BAILEY-LEBBY COMPANY
CHARLESTON, S. C.

Rego Welding & Cutting Apparatus



Kentucky Acetylene Generators
Welding Supplies

Oxygen Hydrogen Acetylene

KENTUCKY OXYGEN-HYDROGEN CO.

Logan St. & Goss Ave. Louisville, Ky.



TENNESSEE COAL, IRON & RAILROAD CO.

TENNESSEE SPECIAL



TOOL STEEL

A High Grade Carbon Tool Steel

All Principal Sizes in Stock, Either Annealed or Unannealed

Stock List Upon Request

General Offices: Brown-Marx Building, Birmingham, Alabama

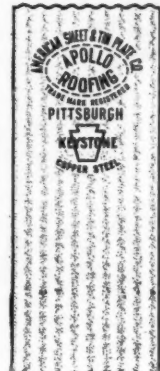
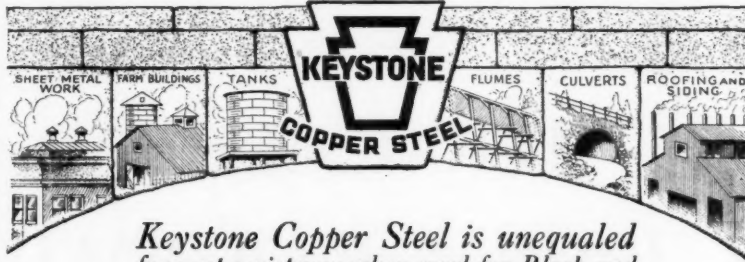
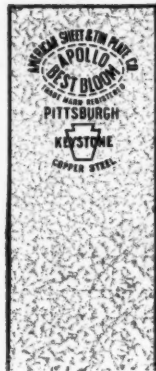
BRANCH OFFICES:

Boston	Buffalo	Chicago	Cincinnati	Cleveland
Denver	Detroit	New Orleans	New York	Philadelphia
	Pittsburgh	St. Louis	St. Paul	

Pacific Coast Representative: United States Steel Products Co., San Francisco, Seattle, Portland, Los Angeles

Export Representatives: United States Steel Products Co., New York City.





Keystone Copper Steel is unequalled for rust resistance when used for Black and Galvanized Sheets, Roofing and Siding Products, Terne Plates, etc. When Copper Steel is used the Keystone is added to regular brand.

COPPER—properly proportioned, puts into sheet steel a new measure of endurance and *resistance to rust* that cannot be attained without its help.

From where steel is made to where it is used—surpassing quality is the foundation of high reputation. The Sheets and Tin Plates produced in our great mills have an established reputation for excellence—products that fully measure up to all claims made for them.

We shall be pleased to assist the industry in the solution of particular sheet metal problems.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis

Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City

Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle



YOUR needs complete—if you use sheet metal of any type, we can furnish a product adapted to your demands. We combine good materials with the most approved manufacturing methods.



Apollo

*Best Bloom Galvanized Sheets
Culvert, Flume and Tank Stock
Formed Roofing and Siding Products*



Black Sheets for all Purposes
Keystone Copper Steel Sheets
Stove and Range Sheets
Sheets for Electrical Apparatus
Automobile Sheets—all grades
Special Sheets for Stamping
Tin Plates and Terne Plates, Etc.



American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

MANUFACTURERS OF

Sheet and Tin Mill Products for all purposes—Black Sheets, Galvanized Sheets, Tin and Terne Plates, Special Sheets for Stamping, Corrugated and Formed Roofing and Siding Materials, Electrical Sheets, Wellsville Polished Steel Sheets, Automobile Sheets in all grades, Deep Drawing Sheets, Stove and Range Sheets, Black Plate, Etc.

Back to War Conditions?

"There isn't enough coal to go around, and there isn't going to be enough... The old job of 1917-18 and 1920—of spreading a thin supply of coal over a wide and persistent demand and need—is here again.....

"We are not at war with a foreign power, it is true, and a call to patriotism falls short on that count. But what is war but an effort to avert national disaster, and what less faces the country this winter with crippled railroads and short coal supply?"—*Coal Age*, August 17th, 1922.

ANCHOR POST GALVANIZED CHAIN LINK FENCES

are potent guardians of coal-piles today just as they were four years ago. Now, as then, the plant blessed with an adequate coal supply needs Anchor Post protection against the inroads of fuel-seeking trespassers.

One may fly over an Anchor Post Chain Link Stockade, but it will thwart even the most venturesome and agile climber. The strong mesh, too small to offer a foothold, is hung taut between sturdy iron posts, deep-anchored in the ground. Barbed wire strands on stout arms of pressed steel make surmounting impossible. And the whole installation is heavily galvanized to insure permanent impregnability.

Catalogs, information, and estimates on request at any branch office

ANCHOR POST IRON WORKS
HUDSON, TERMINAL BLDG., 50 CHURCH ST., NEW YORK
Factories at Garwood, N. J. & Cleveland, O.



Protect Your Coal Pile

Anchor Post Fences

BRANCH OFFICES

BOSTON, MASS. . . . 79 Milk Street
CHICAGO, ILLINOIS . . . 8 So. Dearborn Street
CINCINNATI, OHIO . . . 141 East Fourth Street
CLEVELAND, OHIO . . . Guardian Building
DETROIT, MICH. . . . 4th Floor, Penobscot Bldg.
HARTFORD, CONN. . . . 902 Main Street
MINEOLA, L. I., N. Y. . . . 167 Jericho Turnpike
PHILADELPHIA, PA. . . . Real Estate Trust Bldg.
PITTSBURGH, PA. . . . Room 428
ROCHESTER, N. Y. . . . 541 Wood Street
1004 Main Street, East

SALES AGENTS

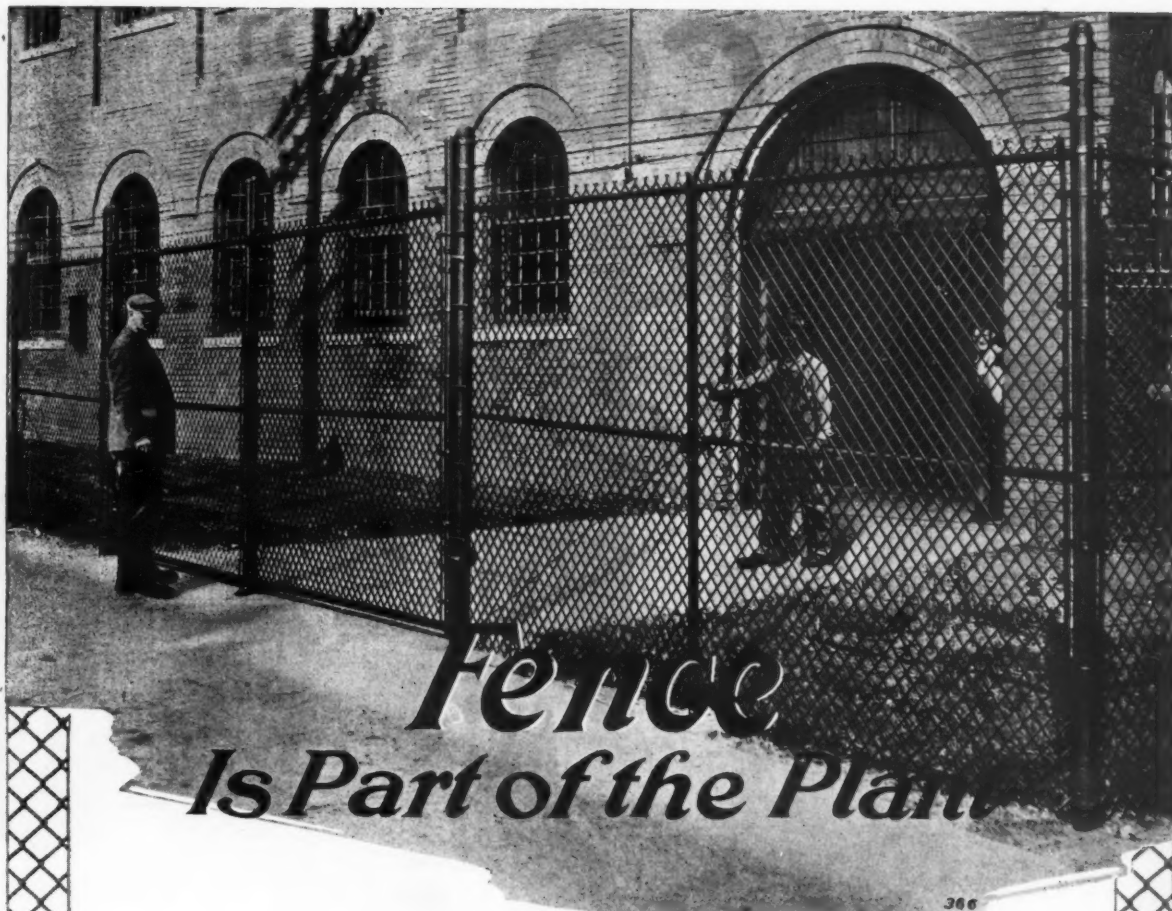
ATLANTA, GA. . . . Beaulieu & Applewhite
1317 3rd Natl. Bk. Bldg.
BIRMINGHAM, ALA. . . . 2011 Third Avenue
C. S. Caldwell
DALLAS, TEXAS . . . Southern Wire & Iron Co.
GREENVILLE, S. C. . . . Henry H. Orr
315 Palmetto Building
KANSAS CITY, MO. . . . The Pierce Co.
930 Wyandotte Street
KNOXVILLE, TENN. . . . Chas. M. Allen Co.
407 Burwell Building
LOS ANGELES, CAL. . . . J. E. Dwan
616 South Utah Street
MINNEAPOLIS, MINN. . . . Speers-Jevne Co.
Builders Exchange Bldg.
NEW ORLEANS, LA. . . . J. T. Mann Co., Inc.
308 Tchoupitoulas St.
PORTLAND, OREGON . . . The Merrill Co.
Chamber of Commerce
Building
RICHMOND, VA. . . . R. M. Nolting
119 Mutual Building
SAVANNAH, GA. . . . Chas. M. MacLean Co.
Merchants Natl. Bk. Bldg.
SEATTLE, WASH. . . . F. T. Crowe & Co.
508 Westlake Ave. North
SAN FRANCISCO, CAL. . . . Richard Spencer
632 Hearst Building
ST. LOUIS, MO. . . . Reinforced Concrete Co.
4215 Clayton Avenue

FIRM — BECAUSE THEY ARE ANCHORED



Anchor Post Fences

PERMANENT — BECAUSE THEY ARE GALVANIZED



Fence Is Part of the Plan

No. 4—It controls traffic in and out of the plant. It prevents intrusion. Employees work full time, uninterrupted by visiting friends, relatives or walking delegates. Increased production results and opportunity for breeding trouble is avoided.

In the textile mills of the South, this sort of annoyance is especially aggravating and the textile companies have found the erection of strong property fence a paying investment. It will be noted how effectually the Afco Fence and Gates bar unwelcome visitors. The same Barrier of Steel controls the coming and going

of employees, the ingress and egress of trucks, goods and all forms of traffic. One watchman at the gate is sufficient.

Because Afco Fences are strong and because Afco Welded Gates were found to give the desired degree of security at the entrances, they were chosen to stand guard at this mill.

*To provide storage space,
reduce fire hazard,
prevent theft,
control traffic, and
eliminate trouble,
protective fence is an essential part of the plant.*

We will be glad to have our Fence Engineers consult and advise with you. Ask us to send you a copy of our Factory Fence Catalog No. 21G.

American Fence Construction Company

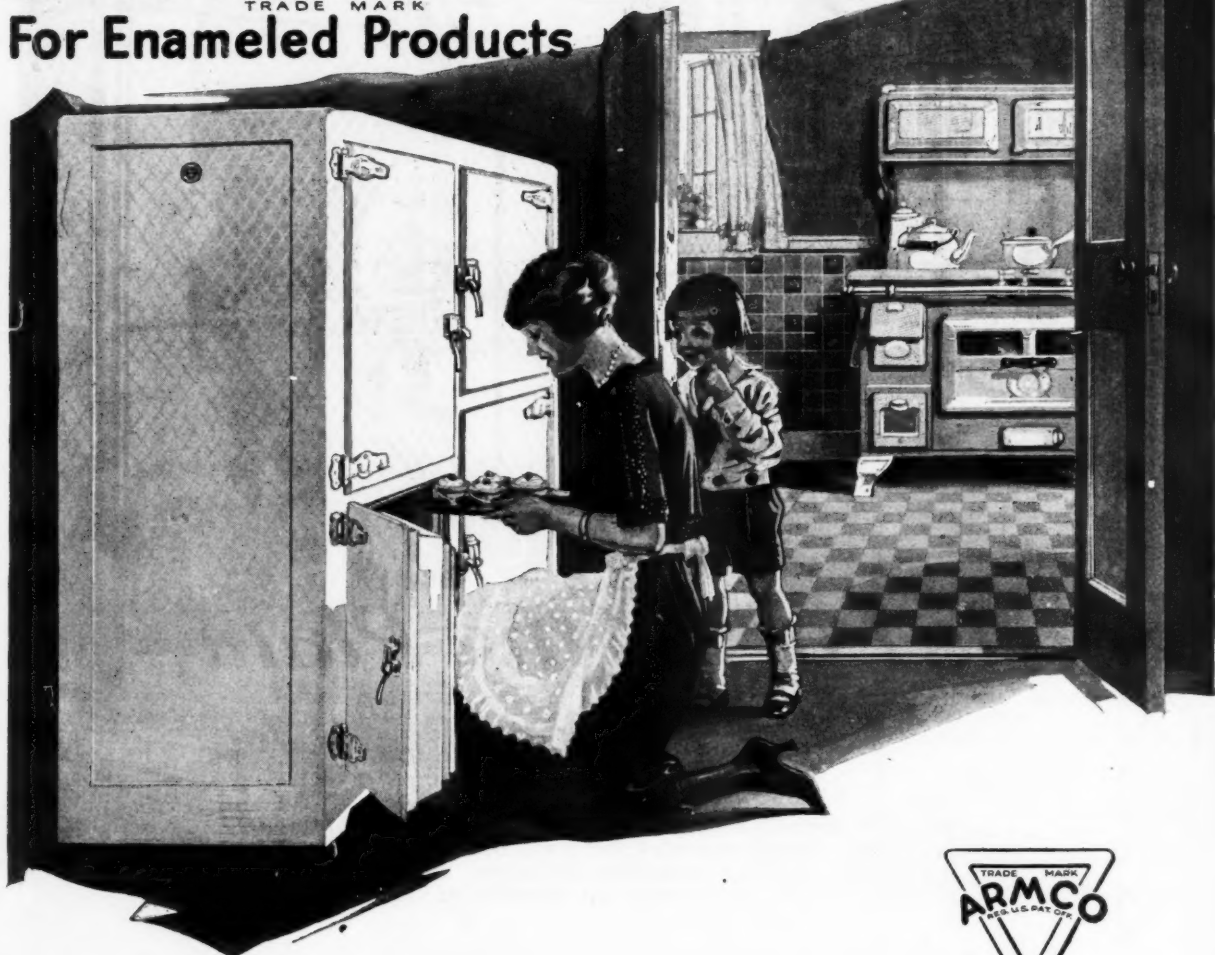
130 West 34th Street
New York

Barriers of Steel
Afco Fences

ARMCO INGOT IRON

TRADE MARK

For Enameled Products



A refrigerator of "Armco" Ingot Iron has the sheer, beautiful gloss of fine porcelain.

Vitreous enameling is a severe test on metal, because the extreme heat of the enameling ovens liberates the imprisoned gases in the metal allowing them to come through the coating of enamel causing pin holes and blisters.

These imperfections ruin what would otherwise be a beautifully smooth surface.

"Armco" Ingot Iron, because of its purity, successfully meets the severest of laboratory and service tests. If you are not already using this pure iron for all of your sheet metal requirements, you should investigate its possibilities.

Write for booklet "What causes rust"

The American Rolling Mill Company
MIDDLETOWN, OHIO

When you think of STEEL, think of CARNEGIE

It is ever our constant endeavor to maintain, and build up where possible, the standard of quality and service by which Carnegie Steel Company has won the reputation it today enjoys.

Carnegie Steel Company

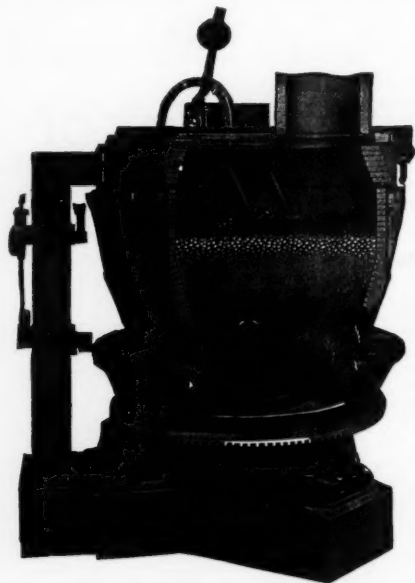
GENERAL OFFICES: Carnegie Building, PITTSBURGH, PA.

Birmingham, Boston, Buffalo—DISTRICT SALES OFFICES—Chicago, Cincinnati, Cleveland, Denver, Detroit, New Orleans, New York, Philadelphia, Pittsburgh, St. Louis, St. Paul

Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City, London

Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY
San Francisco, Los Angeles, Portland, Seattle

The Machine of Absolute Satisfaction



Selected by every large purchaser in the steel industry since the Armistice. Four hundred ordered in the first four years.

POKERLESS PRODUCER-GAS MACHINE

Users everywhere testify with one voice to the superior satisfaction and **low maintenance expense** of this splendid machine. Difference in first cost comes back annually, every detail built for endurance.

Morgan Construction Company
WORCESTER, MASS.

Pittsburgh Office: 704 Arrott Bldg.

Telephone: Court 1381

ROBT. WETHERILL & CO INC.

Department of
SUN SHIPBUILDING CO.

IRON CASTINGS

General Machine Work
for our Modern Well
Equipped Shops
Large or Small Tools
at your service.

MACHINE WORK

CORUSS ENGINES

General Machine Work
for our Modern Well
Equipped Shops
Large or Small Tools
at your service.

**STEEL PLATE
WORK**

General Machine Work
for our Modern Well
Equipped Shops
Large or Small Tools
at your service.

We Solicit Your Orders.
Prompt Deliveries.

NEW YORK OFFICE: 25 BROADWAY

MAIN OFFICE & WORKS.

CHESTER, PENNA.

THE BRIER HILL STEEL CO.

PLATES — TANK, BOILER, FLANGING, FIRE BOX, ETC.

BLUE ANNEALED, BLACK, GALVANIZED — **SHEETS**

General Offices: YOUNGSTOWN, OHIO

CONSOLIDATED STEEL CORPORATION, NEW YORK—Sole Export Representatives

THE ALABAMA COMPANY

BIRMINGHAM, ALA.

Manufacturers and Producers.

Pig Iron "CLIFTON" and
"ETOWAH" Brands.
Machine cast—Free from Sand
and Slag and uniform size
and dependable analysis.

COKE "BROOKWOOD" for foundry
and gas purposes.
Hand picked and selected.

COAL Steam and Coking Coals.
Washed and Sized Smithing Coals.

We are moving our products.

Why?

The **QUALITY** is right and
the **PRICE** is right.

GALVANIZING KETTLES

COMPLETE PLANTS



ANNEALING BOXES

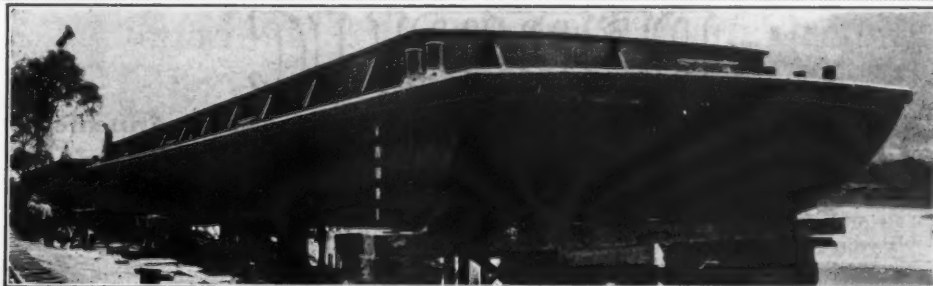
SEND US YOUR INQUIRIES

**MILLARD F. WILFONG
IRON WORKS COMPANY**

PHILADELPHIA, U. S. A.

S
T
E
E
L

B
A
R
G
E
S



D
U
M
P

S
C
O
W
S

STEEL BARGES

MIDLAND BARGE COMPANY

MIDLAND, PENNSYLVANIA

Steel Barges—Steel Hulls—Derrick Boats—Dump Scows and Steel Whariboats

ALAN WOOD IRON AND STEEL CO.

SAN FRANCISCO
FORT WORTH
LOS ANGELES

Philadelphia, Pa.

NEW YORK
BOSTON



STEEL PLATES

Boiler Plates, Ship Plates, Tank Plates

Concrete Specialties

THE WILSON COMPANY

Representing
THE DOW COMPANY
Louisville, Ky.
STRUCTURAL STEEL
Ornamental Iron
Wire Grilles
Pipe Railings
Bronze Tablets

HAVEMEYER
STEEL BARS

COMPLETE STEEL AND IRON
REQUIREMENTS FOR BUILDERS
AND CONTRACTORS
GREENVILLE, S. C.

"Easley" & "Ala. City"
BASIC SLAB
Crushed & Screened G

Branch Office
213 Latta Arcade
Charlotte, N. C.

Engineers
Contractors

PATTERSON STEEL CO.

Fabricators
Erectors

STRUCTURAL STEEL

Complete Industrial and Oil Field Buildings

Warehouse TULSA, OKLA. Shops

HAVEMEYER PRODUCTS

A Complete line of Metal Building Products

Immediate stock shipments from our warehouse in Birmingham and from other points throughout the South.

Havemeyer Bars for reinforced concrete—Bent or straight
Havemeyer Supporting, Spacing and Tying Devices
for holding bars in place in forms.

Inserts
Channels
Curb Bars
Wire Mesh
Spirals

Base Bead
Metal Lath
Corner Bead
Stair Tread
Bar-Tys

Soffit Clips
Security Anchor
Expanded Metal
Crimped Furring
Bar Spacers

Catalogs on request

CONCRETE STEEL CO., 42 Broadway, New York

Southern Office: Browne-Marx Bldg. Birmingham, Ala.

Washington, D. C. Office: Woodward Building.

Norfolk, Va. Office: Board of Trade Building.

Philadelphia, Pittsburgh, Cleveland, Detroit, Denver, Kansas City, St. Louis,
Boston, Des Moines, Syracuse, St. Paul, Omaha, Cincinnati, Baltimore,
Hartford, Chicago.

METAL LATHS
CONCRETE
MIXERS
BARS
EXPANDED METAL
SOUTHERN STEEL PRODUCTS CO.,
CONCRETE REINFORCEMENT
RICHMOND
OFFICE
Va. Ry. & Power Bldg.
WAREHOUSE
4th & Bainbridge

REINFORCING BARS

All Sizes Round & Square

METAL LATHS—EXPANDED METAL
NAILS, WIRE WALL PLUGS, WALL TIES.

VIRGINIA STEEL SUPPLY COMPANY

Office & Warehouse
17th and Dock Sts.,

RICHMOND, VA.

ALLEGHENY STEEL COMPANY

Manufacturers of

STEEL AND CORROSION RESISTING ALLEGHENY IRON
PLATES, SHEETS, BOILER TUBES AND PIPE

Ask about Allegheny Iron

Oliver Bldg., PITTSBURGH, PA. Works: BRACKENRIDGE, PA.

REINFORCING BARS

Deformed. All Sizes. Rounds & Squares $\frac{1}{4}$ " to $1\frac{1}{2}$ "

New Billet Stock. Straight or Bent.

Warehouse or Mill Shipments.

KNOXVILLE IRON CO. Knoxville, Tenn.

REPUBLIC SHEETS

One Pass Cold Rolled and Annealed—
Single Pickled—Blue Annealed—Flat
Galvanized—Formed Roofing Products.

When you are in the market for sheets be sure to specify and receive the Republic brand. The name is stenciled on the top sheet of every bundle. It is your guarantee of quality.

Quotations by return mail.

REPUBLIC IRON AND STEEL COMPANY

General Offices: Republic Building, Youngstown, Ohio

Birmingham
New York
Cleveland

Chicago
Boston
Buffalo

SOLE EXPORTER OF OUR COMMERCIAL PRODUCTS **CONSTEEL** CONSOLIDATED STEEL CORPORATION
29 BROADWAY, NEW YORK, U.S.A.

Cincinnati
Philadelphia
St. Louis
Pittsburgh

Detroit
Dallas
San Francisco

TO THE TRADE:

Present conditions have proven manufacturers must depend on efficient warehouse distributors for at least part of their steel requirements.

Jobbers are protection to the trade, keep them running, prevent delays, avoid overstock and market declines.

IMMEDIATE SHIPMENT

From Cisco Warehouses located, equipped and operated to render satisfactory service, will give you your steel when needed.

IRON AND STEEL PRODUCTS

Bars, Angles, Beams, Channels, Plates, Sheets, Pipe, Reinforcing Bars, Rivets, Shafting, Boiler Tubes, Tool Steel, Chain.

WRITE FOR STOCKLIST AND REFERENCE BOOK

The Cincinnati Iron & Steel Co.
Cincinnati, U. S. A.

BLACK AND GALVANIZED**STEEL AND IRON****OF EVERY DESCRIPTION**

Hoops, Bands, Angles, Channels, Tees, Beams
Ovals, Half Ovals, Half Rounds, Hexagons
Rounds, Squares, Flats and Special Shapes

Wire of all Sizes, Shapes, Quality, Finish
Wire Workers' Supplies, Wire Cloth, Wire Shapes
Metal Lath and Supplies for Metal Lathers
Expanded & Perforated Metals, Machine Guard Supplies

Plates—Plain and Diamond Pattern Floor and Door
Sheets—Blue Annealed, Black and Galvanized,
Flat and Corrugated

Nails—Wire, Coated and Cut. Hack Saw Blades
Hand Punches and Shears, Rivets, Bolts
Nuts, Washers, Forgings and Stampings

Shipments from Stock or Mill. Large stock of
Galvanized Bars, Bands, Hoops, Shapes, Etc.
No specification too large or too small
for us to quote on

THE HAROLD McCALLA Co.

Pier 56 North Wharves Delaware River, Beach St.
and East Columbia Ave., Philadelphia, Pa.

THE FALCON STEEL CO.

Mills and Executive Offices: NILES, OHIO

BLACK SHEETS GALVANIZED
BLUE ANNEALED SHEETS SINGLE PICKLED
UNIFORM BLUE

SHARON

PRESSED STEEL COMPANY

Industrial Trucks and Trailers
PRESSED STEEL PARTS

For Railways, Motor Cars, Trucks and Tractors
Main Office SHARON, PA. and Works



PITTSBURGH TANKS
& Structural Steel Work
PITTSBURGH, DES MOINES STEEL COMPANY
CURRY BUILDING, PITTSBURGH, PA.

DIETRICH BROTHERS

Structural and Ornamental Iron and Steel Works
Large Stock of Standard and Bethlehem Shapes
CONCRETE REINFORCEMENTS
BALTIMORE, MD.

**"PITTSBURGH PERFECT" OPEN HEARTH
STEEL AND WIRE PRODUCTS**

Pig Iron
Blooms
Billets
Wire Rods

Bright Wire
Annealed Wire
Galvanized Wire
Varnished Wire

Market Wire
Barbed Wire
Twisted Cable Wire
Hard Spring Coil Wire
Cotton Ties

Standard Wire Nails
Galvanized Wire Nails
Coated Wire Nails
Blued Wire Nails

Miscellaneous Nails
Poultry Netting Staples
Wire Fence Staples
Bale Ties

Steel Hoops

Steel Bands

Cotton Ties

Automobile and Motorcycle Rim Stock

ELECTRICALLY WELDED WIRE FENCING



PROMPT SHIPMENTS Write for Catalogues and Prices PROMPT SHIPMENTS
MANUFACTURED BY

PITTSBURGH STEEL COMPANY

MEMPHIS

PITTSBURGH, PA.

DALLAS

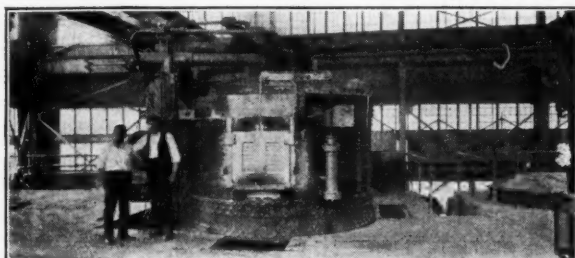


AMERICAN BRIDGE COMPANY

71 Broadway, New York

Manufacturers of Steel Structures of all classes, particularly

BRIDGES and BUILDINGS

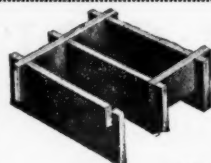


HEROULT ELECTRIC FURNACE

We also furnish and install

HEROULT ELECTRIC FURNACES of ONE, TWO, THREE, SEVEN, TEN, FIFTEEN and FORTY GROSS TON CAPACITIES

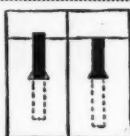
OFFICES IN PRINCIPAL CITIES



"MITCO" INTERLOCKED GRATINGS

No bolts. No rivets. No bent metal. No clogging. Every Joint locked by metal spread in dovetail. Write for data.

Mitchell-Tappen Co., 15 John St., N. Y.
Also makers of Standardized Metal Casing ("S.M.C.")



BELMONT IRON WORKS PHILADELPHIA NEW YORK EDDYSTONE

Engineers Contractors Exporters

Structural Steel and Steel Lumber

Complete Industrial Buildings



Works at
Madison, Ill., and Alton, Ill.

REINFORCING STEEL

Plain Rounds, Deformed Rounds,
Plain Squares, Deformed Squares,
Twisted Squares

LACLEDE STEEL CO.
ST. LOUIS, MO.

IRON AND STEEL PRODUCTS Steel Plate and Structural Steel Work

IRONTON BOILER WORKS, Ironton, Ohio

CONVERSE BRIDGE & STEEL CO. STRUCTURAL STEEL

For

Industrial Buildings, Mines, Refineries,
and the Building Trade
CHATTANOOGA TENNESSEE

FARRIS BRIDGE COMPANY

Bridges, Coal Tipples, Mill Buildings.
Toll Bridges Financed and Built.

At pre-war prices

CHARLESTON, W. VA. CUMBERLAND, MD.

ROANOKE IRON & BRIDGE WORKS, Inc.

Structural and Ornamental Iron

Wrought Steel Fences Gray Iron Castings

FROM 1 TO 10,000 LBS.

Write for Estimates ROANOKE, VA.

Steel Bridges & Buildings

McClintic-Marshall Co.
Pittsburgh

Snead Architectural Iron Works

LOUISVILLE, KY.

**STRUCTURAL STEEL
ORNAMENTAL IRON**

Immediate Shipment of all
Standard and Bethlehem Shapes

EITHER PLAIN OR FABRICATED

BUILDINGS—BRIDGES

STRUCTURAL STEEL
fabricated for all purposes

If your requirements are
for the South, get our prices.
Largest facilities and stocks.

THE INGALLS IRON WORKS CO.

Works and Executive Offices:
BIRMINGHAM, ALA.

BRANCH OFFICES:

109 City Bank Bldg.
NEW ORLEANS, LA.
16 Exchange Place
NEW YORK CITY

228 Piedmont Bldg.
CHARLOTTE, N. C.
P. O. Box 712
DAYTONA, FLA.

INTERNATIONAL STEEL & IRON CO.

Department 16

EVANSVILLE, INDIANA

WAREHOUSE AND FABRICATING PLANT—EVANSVILLE, IND.

IRON AND STEEL

STANDARD AND BETHLEHEM

Carried in Warehouse Stock for Immediate Shipment

STEEL for BRIDGES and BUILDINGS
FABRICATED PROMPTLY

Elevators
Cornice and Skylights
Steel Ceiling

STORE FRONTS
WRITE FOR GENERAL
CATALOGUE

Millwork and Glass
Ornamental Iron
Certian-teed Roofing

CURTIS BAY COPPER & IRON WORKS

INCORPORATED

BALTIMORE, MD.**FABRICATED STEEL**

BUILDINGS, BRIDGES, TANKS

GENERAL MACHINISTS

MODEL AND DEVELOPMENT WORK



Norfolk and Western Rwy. Crossing
New River at Pepper, Va.

Bridge Ahead!

Steel
Bridges
Buildings
Etc.

TUNNEL, Bridge and
Curve—but this Bridge
of Steel holds safe each
freight and passenger.

Just so can Steel be depend-
ed on for every construction
project—and no less our
ability as Designers and
Builders of Steel.

Virginia Bridge & Iron Co.

Roanoke Memphis Birmingham
Atlanta New Orleans Dallas

VIRGINIA BRIDGE
STEEL STRUCTURES

Fabricated Steel Structures

Tanks, bins, bunkers, stacks, gas mains, piping, pro-
ducer gas plants and tar extractors. Also have
completely equipped pattern shop, gray iron foundry
and machine shop for medium heavy work.

THE SMITH GAS ENGINEERING CO.
DAYTON, OHIO

CHAMPION BRIDGE COMPANY

WILMINGTON, OHIO

MANUFACTURERS OF

Bridges and Structural Work

Southern Office—Atlanta, Ga.

THE PHOENIX IRON CO.

MANUFACTURERS OF OPEN HEARTH

**Structural Steel Shapes, Beams,
Channels, Angles and Ship Shapes**

Works: Phoenixville, Pa.

Main Office: Philadelphia, Pa.

OFFICES:

22 S. 15th St., Philadelphia
Munsey Building, Washington
C. of C. Bldg., Rochester

132 Nassau Street, New York
110 State St., Boston
26 Victoria St., London

THE PHOENIX BRIDGE CO.

Engineers, Fabricators and Erectors
Bridges and Other Structures of Steel

CAPACITY 60,000 TONS

Works and Engineering Office:

Phoenixville, Pa.

Classification Must Be Uniform To Be Worth While

Classification without some degree of uniformity could scarcely be considered worth while.

The closer you can approach to absolute uniformity the more satisfactory your classification will become.

*"The
Perfect"*

"Perfect" Double Crimp Wire Cloth is so constructed as to insure positive uniformity of product. The crimping of both warp and woof wires at every point of contact entirely does away with the possibility of slippage even under the most severe conditions. Hence the openings must remain of uniform area during the life of the screen.

And the life of "Perfect" Screen is far longer than that of ordinary screens, due to the rigidity imparted by Double Crimp construction and the use of superior wire.

The Ludlow-Saylor Wire Co.
ST. LOUIS, MO.

Branch Offices:

Felt Bldg., Salt Lake City, Utah; Martin Bldg., El Paso, Texas;
20 E. Jackson Blvd., Chicago, Ill.



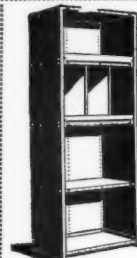
MARQUISE

For all Styles
of Buildings

Write for Circular

Send us sketch or photograph of your entrance and we will design Marquee to meet your requirements.

ProBert Sheet Metal Co. Cincinnati, Ohio



STEEL SHELVING



FACTORY EQUIPMENT

From Warehouse Stock

David Luptons Son's Co. Phila.

ALL GRADES OF WIRE CLOTH MADE OF ALL KINDS OF WIRE

WIRE
WIRE NETTING
WIRE LATH



CLOTH
WIRE FENCING
WIRE WORK

THE NEW JERSEY WIRE CLOTH COMPANY
MAIN OFFICE: TRENTON, NEW JERSEY

DUFUR, BAGGOTT & CO.

BRASS AND STEEL WIRE WORK OF EVERY DESCRIPTION

Absolute Prompt Delivery

Bank Work Elevator Enclosures Elevator Cabs
Counter Railings Grilles Wickets Guards
Partitions Skylight Protectors, Etc.

403 N. PACA STREET

BALTIMORE, MD.



Iron Fence and Entrance Gates

For Every Purpose
LAWN VASES SETTEES
General Iron and Wire Work
Dealers Wanted

THE STEWART IRON WORKS CO., Inc., 535 Stewart Block, CINCINNATI, O.



Dufur & Co.

309 N. HOWARD ST.
BALTIMORE, MD.

MANUFACTURERS OF

IRON AND WIRE BANK WICKETS,
RAILINGS AND WINDOW GUARDS

WE ALSO MANUFACTURE
BRASS, STEEL AND
GALVANIZED WIRE CLOTH



MR. CONTRACTOR

Have you received our

CATALOG No. 67

the most complete catalog on Iron and
Wire Work issued illustrating

Window Guards
Grilles and Wickets
Cellar Doors

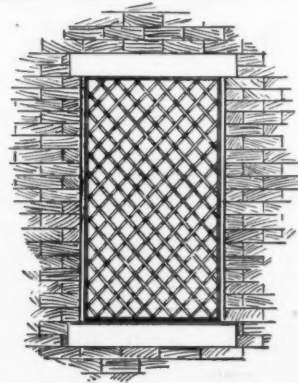
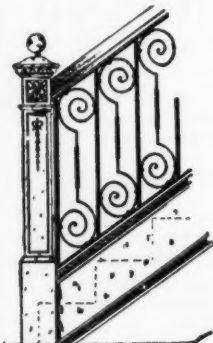
Fencing
Balconies
Fire Escapes

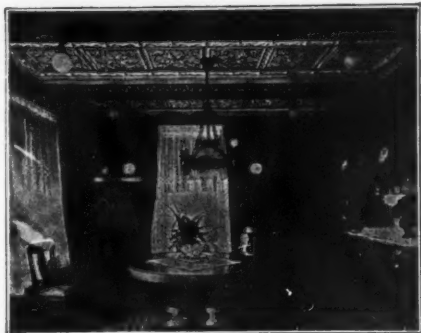
Iron Stairs
Lighting Fixtures
Railings

Elevator Cars and Enclosures
Builders Wire and Iron Work
Ornamental Wire, Iron and Bronze Work

If not, send for it today.

THE FRED J. MEYERS MFG. CO.
HAMILTON, OHIO





Edwards Embossed Metal Ceilings and Side Walls

Are Sanitary, Durable, Fire-proof, Germ-proof. Made from sheets of specially prepared steel and stamped into ornamental designs.

Send us a rough sketch of rooms showing all offsets, etc., and we will prepare, without any charge, a drawing showing how the ceiling will look when erected, and forward same together with a lump price for material delivered f. o. b. your railroad station.

Our large Catalog showing our complete line of Ceilings and Walls sent free on request.

The Edwards Manufacturing Co.

411-431 Culvert St., Cincinnati, Ohio

The World's Largest Manufacturers of Metal Roofing, Metal Shingles, Metal Spanish Tile, Metal Ceilings, Metal Garages, Portable Buildings, Rolling Steel Doors, Partitions, etc.

BERLOY Standard High Grade Steel Products Backed By Real Service.

Ask About—METAL CEILINGS, SHINGLES, SPOUTING, ROOFING, SIDING, LOCKERS, FILING CASES, SHELVING, METAL LATH, METAL LUMBER.

The Berger Mfg. Co., Canton, Ohio
Philadelphia, Roanoke, Jacksonville, Dallas



"THE CANTON LINE"

of Improved STEEL CEILINGS, Metal Shingles
and Copper Bearing Tin Plate

THE CANTON ART METAL COMPANY
CANTON, OHIO

THE "ANTI-PLUVIUS" PUTTYLESS SKYLIGHT

Structurally perfect in its every detail.

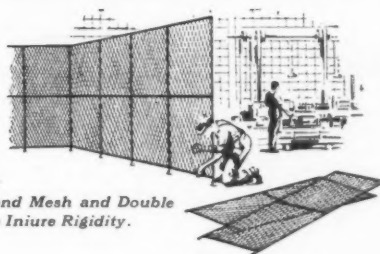
Send for catalogue No. 20 M.

THE G. DROUVÉ COMPANY
BRIDGEPORT CONN.

STEEL LOCKERS STEEL SHELVING

SEND FOR CATALOGS
FRED. MEDART MFG. CO.

Potomac & DeKalb Sts., ST. LOUIS, MO.
New York Chicago
52 Vanderbilt Ave. 326 West Madison St.



Diamond Mesh and Double
Crimp Injure Rigidity.

What do Wire Partitions Mean?

Good partitions mean increased production thru orderly stock rooms and greater efficiency in routing parts thru the plant in the shortest time. They mean that dangerous machinery will be out of reach of careless workmen. They mean an enormous yearly saving in tools that cannot be mislaid or lost.

But be sure your partitions are good partitions—they will be if you specify

AUDUBON WIRE PRODUCTS for Industrial Uses

To executives who are interested in better wire partitions, we will be glad to mail our interesting, detailed booklet, "A Partition Between." Send for it today.

We Also Make

Brass, Copper, Steel and Galvanized Wire Cloth for every industrial use:—Window guards—Partitions—Stock Room and Elevator Enclosures—Coal and Sand Screens—Sieves and Riddles, Factory Baskets, and Wire Specialties.

Audubon Wire Cloth Co., Inc.

Audubon, New Jersey

3 miles from Philadelphia with
direct Railroad Connections

District and Export
Sales Office:

Batcheller-McConnell

Co.

66 Beaver St.
New York



C. Elmer Cary

1405 Monadnock

Block

Chicago, Ill.



THE greater part of America's gigantic fire loss in industrial plants could be avoided through the general use of *Richards-Wilcox* automatic-closing fire doors.

In factories and warehouses equipped with these doors, the destroying element is confined to the one room in which it originates. The fire curbs itself—the heat which it creates automatically closes the fire doors.

R-W Automatic-Closing Fire Doors Will Do It!

R-W automatic closing doors are built to meet the particular requirements of the building in which they are to be installed. They are approved and labeled by the *Underwriters' Laboratories*. Our engineers

are at your disposal in the planning of fire prevention in your plant. No charge is made for their services. Write today for further particulars and a copy of Catalog U-14.

Also manufacturers of the celebrated *OveR-Way* conveying equipment; speeds production, cuts overhead.

Richards-Wilcox Mfg. Co.
A Hanger for any Door that Slides

AURORA, ILLINOIS, U.S.A.
Chicago Boston New York St. Louis Cleveland Indianapolis
Philadelphia Minneapolis Winnipeg LONDON, ONT. Montreal
Los Angeles San Francisco

"Slidetite," manufactured by *Richards-Wilcox*, is the original sliding-folding garage door hardware.

STANDARD TIN CLAD FIRE DOORS AND SHUTTERS

Manufacturers of

Steel Rolling Doors and Shutters
Cross Horizontal Folding Doors
Kal-O-Mine Art Doors
Hollow Art Metal Doors
Underwriters' Iron Fire Doors
Vamanco Freight Elevator Doors
Varclad Freight Elevator Doors
Fire Door Hardware

PHILIP H. LENDERKING
BALTIMORE, - - MARYLAND

Marine "VITA" Glue

Sets and stays in seams. Has tenacity and vitality

For samples and prices write to

BINNEY & SMITH COMPANY

41 East 42nd Street, at Madison Ave., New York City



BUCKEYE BLOWER COMPANY

VENTILATING FANS—ALL SIZES
Columbus, Ohio.



STEEL SHUTTERS

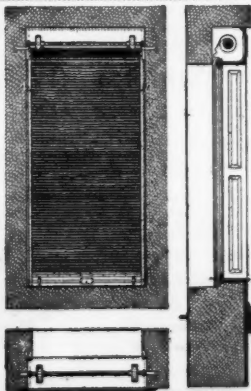
for Windows, Doors, Driveways, Etc. also

ROLLING PARTITIONS

For Churches, Schools, Hospitals, etc., Wherever Division of Rooms is Required.

Prices Most Reasonable.

SWEDISH VENETIAN BLIND CO.
1269 Broadway, New York
Branches in Principal Cities



MARBLELOID

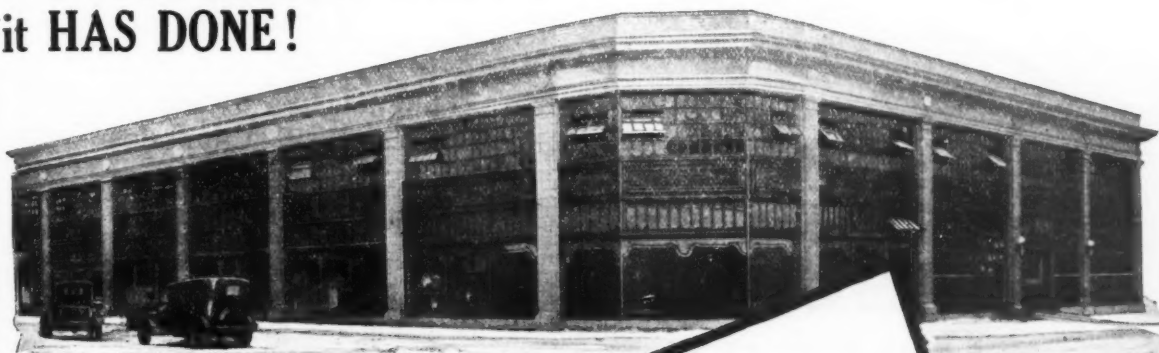
The Universal FLOORING for Modern Buildings

Offices, Industrial Plants
Hospitals, Schools etc.



The Marbleloid Co., 461 8th Ave., New York

**Judge what Master Mix
will do by what
it HAS DONE!**



Cadillac Garage, Minneapolis, Minn.
Farnam Construction Co., Architects & Contractors.

**FARNAM
CONSTRUCTION COMPANY
BUILDERS**

Minneapolis
March 28, 1921.

Plymouth Building

The Master Builders Co.,
Cleveland, Ohio.
Gentlemen:

On the Cadillac Garage, 10th and Mary Place, we used Master Mix in the laying of 60,000 square feet of floors. The floors are hard and smooth and the owners are well pleased with them.

We laid these floors in December, and practically all finishing was done during regular working hours. This effected a saving in labor cost. As our lighting facilities were not the best, the finish would not have been so uniformly good if it had been done partly at night with artificial light.

We estimate that we saved 40% of the cost of the Master Mix in the saving made on overtime labor.

Yours very truly,
FARNAM CONSTRUCTION COMPANY.
(Signed) L. C. Farnam



For specifications see pages 202, 203, 7th Edition, Sweet's Engineering Catalog, and pages 102, 103, 16th Architectural Edition.

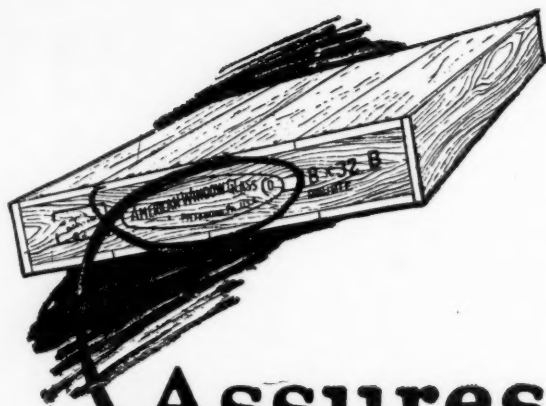
THE MASTER BUILDERS COMPANY

MAIN OFFICE: CLEVELAND, OHIO

Factories at Cleveland and Irvington, N. J.

Sales Offices in Seventy Cities

Master Mix for Mortar



Assures Better Windows

TODAY'S windows are vastly better than the low grade windows so common a generation ago. For this, the high-average machine production of The American Window Glass Company deserves much of the credit. With every step in the manufacturing processes under perfect control, a high degree of uniformity in quality, thickness and strength is now absolutely assured.

High Standards of Grading

With high average quality of production, our standards of grading are correspondingly high, in fact the highest standards used in the United States. American Window Glass Company seconds ("A" quality) are suitable for high class residence and public building glazing. Our thirds ("B" quality) are as good or better than many seconds.

Branded Grade Marking

High grading standards invite substitution. Look for the branded American Window Glass Company trade mark on every box of single or double strength glass to see that the branded grade marking has not been altered.

*See Sweet's Architectural Catalogue
for details of our grading standards.*

AMERICAN WINDOW GLASS CO.

GENERAL OFFICES--PITTSBURGH, PA.

Branches in Principal Cities

Frink Reflectors

For

BANKS STORES
HOTELS CHURCHES
HOSPITALS LIBRARIES
PUBLIC BUILDINGS

Our Engineering Department will be glad to give you detailed information and recommendations on receipt of sufficient details.

I. P. FRINK, Inc.

24th St. and 10th Avenue
NEW YORK

Philadelphia St. Louis
Franklin Trust Bldg. 11th & Olive Streets

WINDOW
PLATE
ART

GLASS

MIRRORS
BEVELING
SKYLIGHT

Richmond,
Va.

ESTABLISHED 1872
BINSWANGER & CO.
(INCORPORATED)

Memphis,
Tenn.

STORE FRONT CONSTRUCTION

GLASS

PLATE WINDOW MIRROR
SKYLIGHT WIRE FIGURED
COPPER SASH AND BARS

Founded 1864

HIRES-TURNER GLASS COMPANY

WASHINGTON Albany Philadelphia Rochester

REFLECTOLYTE Lighting Fixtures

For

Public and Office Buildings, Churches, Schools
Hospitals, Banks, Hotels and Institutions.

Illustrated Catalog on Request

The REFLECTOLYTE Company, 914-G Pine St., St. Louis, Mo.

CUTLER MAIL CHUTES

*A complete and experienced organization in office,
factory and field insures the continued maintenance
of highest quality and the prompt and satisfactory
completion of work.*

CUTLER MAIL CHUTE COMPANY

Offices: ROCHESTER, N. Y. Factory:
Cutler Building Anderson Ave.

From Leaky Sooty Chimneys

Yes, that is the cause of most fires,—the mortar disintegrates and falls out, leaving wooden parts exposed, and every time this happens you are running a risk of fire.

Fire Clay Flue Linings eliminate the danger. They give you a smooth surface and the gases have no effect upon their surface.

This protection is not expensive and absolute insurance from fire is only possible this way.

Why not make your house as fireproof as possible by using the proper construction for chimneys.

Write for booklet which 'will tell you in detail all about Fire Clay Flue Linings.

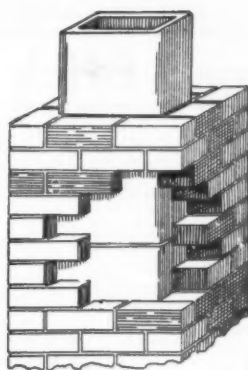


Diagram showing proper construction of chimney with Fire Clay Flue Lining.



Fire Clay Flue Lining for chimneys and Fire Clay Thimble to carry stove pipes through walls to chimneys.



ORNAMENTAL CHIMNEY CAPS WILL PRESERVE THE TOPS OF YOUR CHIMNEYS.

Oconee Brick & Tile Co.

Manufacturer of Clay Products

Milledgeville - - Georgia



"Veltone" Brick

Are Exquisitely **SOFT** and **RICH** in Tones. Producing a Beautiful Blended Effect of Reds, Polochrome and Browns. (Can also be furnished in special assortments of all Reds or all Browns.)

Specify: "VELTONE" BRICK, for all exterior walls.

We have all colors of Face Brick in either Rough Texture or Smooth, also Fishlock Brick and Hollow Tile.

**F. GRAHAM WILLIAMS
BRICK
CO.**
CANDLER BUILDING ATLANTA GEORGIA
INC.

IMMEDIATE
SHIPMENT

PRICES ARE
SURPRISINGLY
LOW

Two Textures **RedTEX FACE BRICK** Flashed Brick
LOCK HAVEN BRICK & TILE CO.
Brick of Quality
Lock Haven Penna.



SAWED STONE
SAWED MARBLE
CUT STONE
FINISHED MARBLE
Incorporated 1884
GEO. S. BEIMDIEK,
Gen. Mgr.

CARTHAGE MARBLE & WHITE LIME CO.
CARTHAGE, MO.

TILE at pre-war prices We help you build NOW
WRITE us for our delivered prices on **TILE** for Floors or Walls, of any kind.
We can ship promptly **CERAMIC, QUARRY or FLINT** Floor **TILE**, Glazed or Matt Finish Wall **TILE** and Trim, in car lots or less.
State Quantities wanted.
SOUTHERN MOSAIC TILE CO. Candler Bldg. ATLANTA, GA.

HIGH GRADE SIBLEY FACE BRICK
RED, BUFF AND FLASH
Birmingham Clay Products Co.
901-4 Woodward Bldg. Birmingham, Ala.

ENAMELED BRICK TALKS for Architects

Enameled Brick for Residences

A bright, clean and thoroughly sanitary exterior is most essential for the modern residence.

The Beauty and Individuality, as well as the permanent qualities, of

"ENAMELED BRICK"

should also be taken into consideration when preparing your plans and specifications, for exterior as well as interior.

American Enameled Brick & Tile Co.

Manufacturers of

ENAMELED AND FIRE BRICK.

Dealers in

**FACE BRICK OF ALL COLORS AND
TEXTURES**

52 Vanderbilt Avenue, New York

Samples on display in Architects
Samples Corporation, New York
City. See pages in Sweet's Archi-
tectural Catalogue, also Specifica-
tion Data.

The Beautiful Blended Tones of KINGSPORT ARTISTIC BRICK

Are obtained solely by scientifically burning the wonderful clays in our deposits. No chemicals or foreign ingredients are used whatever.

The wide range of color tones blend harmoniously and give the finished structure a distinctive individuality that enhances the value and salability of the building.

Write for samples and prices
before selecting your brick.

KINGSPORT BRICK CORPORATION
General Offices - - Kingsport, Tenn.

Bricks — Tiles

Fireplaces

**Every Kind - Impervious
Special Designs**

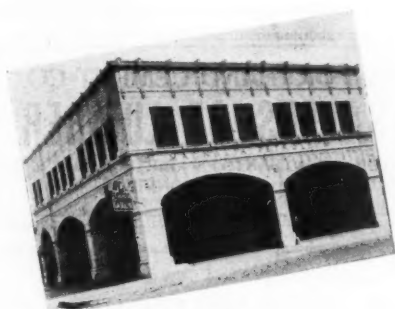
B. MIFFLIN HOOD BRICK CO.
ATLANTA, GA.



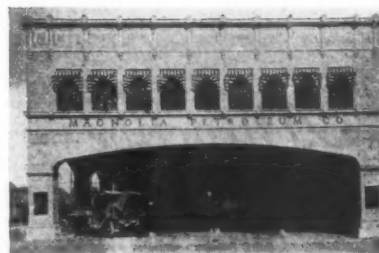
Dallas
Service Station and Office Building Magnolia Petroleum Co.
Lang & Witchell, Architects
Childs-Lassell Const. Co., Builders



San Antonio
Adams & Adams, Architects
Coleman & Jenkins, Builders



Amarillo
Clarkson & Gaines, Architects
C. S. Lambie Co., Builders



Fort Worth
Clarkson & Gaines, Architects
J. C. Buchanan, Builders



Houston
Alfred C. Finn, Architect
Albert Baring, Builder

Oil-proof and Dirt-proof!

All the dirt, oil and grease that accumulates on the walls of these buildings can be washed off with soap and water, and the original clean, bright surface restored.

Not only clean and attractive today but will remain so for the years to come!

That is why the Magnolia Petroleum Co. chose Atlanta Terra Cotta of a light grey unglazed color for their five large service stations in these five Texas cities.

Atlanta Terra Cotta Company
Citizens & Southern Bank Building
Atlanta, Georgia

Southwestern Office
A. P. Clark, District Manager
Praetorian Building
Dallas, Texas

free-



This Book

Contains photographs of 50 modern small homes, with their floor plans, selected to offer the utmost in comfort, convenience and good looks at the least cost.

Attractive Homes that can be Built Economically

AN IMPORTANT part of the Southern Pine Association's service is to make it easy and convenient for the public to obtain home building information. To that end, we have issued this book, "MODERN HOMES." We are distributing it free. Write today for your copy. Select a home that meets your ideas of comfort and convenience, show it to your retail lumber dealer and he will obtain from the Southern Pine Association the plans and specifications and will assist you in figuring the cost of the home complete.

Write today to

Southern Pine Association
NEW ORLEANS LOUISIANA.

This is one of the charming designs from the Southern Pine Association's free plan book, "Modern Homes."



A. S. BACON & SONS **LONG AND SHORT LEAF PINE**

Rough and Dressed
SAVANNAH, GA.

Wire, Telephone or Write Us Your Needs

MORGAN **Doors and Millwork** WHOLESALE **MORGAN MILLWORK CO.** 113-129 West North Ave., Baltimore, Md.

Short Leaf Yellow Pine

Close grain, short leaf finish.
We make a specialty of 2 x 4s S 4 S,
standard and 3/4 scant.

Oak Crossties

McRae Lumber Co., Corinth, Miss.

CAROLINA PORTLAND CEMENT CO. **WHOLESALE OF LUMBER**

CHARLESTON - ATLANTA - BIRMINGHAM
NEW ORLEANS - JACKSONVILLE

1,500,000 feet dry stock now ready

POPLAR, WHITE AND RED OAK
RED AND TUPELO GUM
MAGNOLIA

Glad to have inquiries from responsible buyers.

EASTMAN-GARDINER HARDWOOD CO.
LAUREL, MISS.

LUMBER AND MILLWORK

Center-bored Factory Columns, long-leaf yellow pine, a Specialty.

We furnish at least three-fourths of the South's requirements of Cotton-mill Columns.

Cordele Sash, Door & Lumber Co.
CORDELE, GA.

THOS. W. BLAKE LUMBER CO. WHOLESALE AND MANUFACTURERS **YELLOW PINE**

HARDWOODS, CYPRESS, WEST COAST LUMBER
AND SHINGLES, TIES AND PILING

WE SPECIALIZE IN OIL FIELD TIMBERS AND CARRY IN STOCK DERRICKS & RIGS.

1216 Carter Building HOUSTON, TEXAS

Maple Flooring IS THE BEST *Factory Flooring*

Where hard usage puts flooring to the supreme test,—in factory, warehouse or mill, *Maple Flooring* is always preferable.

Write us today for full information as to sizes and grades, also delivered prices in any quantity, anywhere.

E. BARTHOLOMEW HARDWOOD COMPANY
4050 Princeton Avenue. CHICAGO



The Wood of Service SOUTHERN PINE

Dense • Durable • Dependable

WHY not insist upon lumber and timbers that have been especially made for your purpose?

Our mills give particular attention to Southern Pine items for car builders, factory builders and other users of wood wherein strength and durability are the main essentials.

Yet our lumber and timbers cost no more than ordinary lumber and timbers.

LONG and SHORT LEAF SOUTHERN PINE

**Yard and Shed Stock
Heavy Structural Material**



Photos: American Lumberman

EXCHANGE SAWMILLS SALES CO.

Long Building (Formerly Missouri Lumber & Land Exchange Company) **Kansas City, Mo.**

F. R. WATKINS, Sec'y & Mgr. Yard Sales

R. B. WHITE, President and Gen. Mgr.

R. S. PRICE, Mgr. Railroad & Timber Sales

NECHES VALLEY RED GUM

Plain
and
Quarter
Sawn

**KIRBY-BONNER
LUMBER COMPANY**

HOUSTON, TEXAS

BRANCH OFFICES:

New York Chicago Cleveland
Kansas City St. Louis Oklahoma City
Waco San Antonio Dallas
New Orleans Mobile

"Of
Kirby
Quality"

Yellow Pine

Structural Material
for Industrial Plants.

Bridge, Trestle, Car
and Railroad Stock.

**Central Gulf
Lumber Co., Inc.**
New Orleans, La.

SOUTHERN YELLOW PINE

TIMBERS OUR SPECIALTY
We also carry a full stock of
Yard Items, Moulding, Lath, etc.

R. W. WIER LUMBER COMPANY
HOUSTON, TEXAS

Distributors:
WIER LONG LEAF LUMBER COMPANY
Mills: WIERGATE, TEXAS

YELLOW PINE

Structural Timbers—

FORM LUMBER—FACTORY FLOORING
FRAMING—BOARDS—FLOORING—ETC

H. F. STANLEY LUMBER COMPANY
JACKSON, MISS.



INDUSTRIAL LUMBER COMPANY

General Offices—ELIZABETH, LOUISIANA

Calcasieu Long Leaf Yellow Pine Lumber

RAILROAD AND CONSTRUCTION TIMBERS A SPECIALTY

ANNUAL CAPACITY, 200 MILLION FEET

3 Modern Mills in Louisiana

Manufactured according to your requirements

Central Coal and Coke Company

General Offices
Kansas City, Mo.

**BRANCH SALES
OFFICES**

Chicago, Ill.
Indianapolis, Ind.
Houston, Texas
Dallas, Texas

MILLS

Carson, La.
Neame, La.
Conroe, Texas

All former records for a like period have been broken according to the report of building activity for 1922 to date. Contracts for the East and Central West for August, alone, total \$322,007,000. This shows a gain over 1921 of 46 per cent for the same month. The total for the eight months reaches the amazing figure of \$2,362,872,000, which is greater by seven million dollars than the entire year of 1921, and is greater by 58 per cent than the same period of last year.

The lumber market is reflecting these conditions to an increasing extent each day.

(From report of F. W. Dodge Company)



**Manufacturers
SOUTHERN PINE**

"LONG AND SHORT LEAF"



HENRY O. WILLIAMS
BERZELIA, GA.

MANUFACTURER OF

CRATING MATERIALS

**TUPELO
EXCLUSIVELY**

"THE
SOFTWOOD
HARDWOOD"

PRICES RIGHT

AMERICAN LUMBER COMPANY

LAUREL, MISS.

MAKERS AND SHIPPERS OF

EKONOMEE KRATING

WRITE

FONE

TELEGRAPH

Know a Man by the Company He Keeps



also know a man by the precautions he takes. The best precaution against the lazy watchman is an ECO WATCHMAN'S CLOCK. Simple in construction and nominal in cost. We feel sure that if you do not know us you will be interested in receiving details about a reliable watchman's clock. May we send you these details?

ECO CLOCK COMPANY

194 Congress Street

BOSTON, MASS.

**The CHICAGO
Approved Portable
WATCHMAN'S
CLOCK**



with its special Waltham movement, its lock stations and its superior quality throughout, is especially desirable for mills and factories and for either indoor or outdoor patrol.

Write for Catalogue

CHICAGO WATCHMAN'S CLOCK WORKS

Chicago New York San Francisco
1526 S. Wabash Ave. 9 Church St. 25 Minna St.

RAYMOND MFG. CO., Ltd.
CORY, PA.



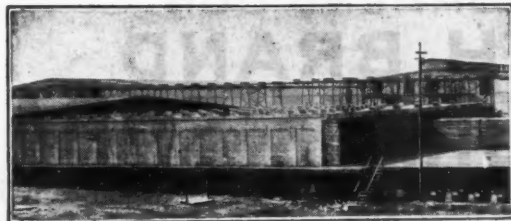
SPRING SPECIALISTS

Carbon or vanadium steel,
brass or bronze springs.

Engineering advice on your spring problems free

Send for catalogue.

QUICK SERVICE



has long been a regular habit with us. If you want good dry kiln equipment in a hurry get in touch with our nearest plant. Our engineering service is free—Put your drying problems up to us.

Write for our catalog

MOORE DRY KILN COMPANY

JACKSONVILLE, FLA.

"Kiln Builders Since 1879"

N. PORTLAND, ORE.

EPPINGER & RUSSELL CO. MAIN OFFICE: 165 BROADWAY, NEW YORK

CREOSOTED LUMBER, TIES, PILES, TELEGRAPH POLES, HEAVY TIMBERS, CROSS-ARMS, ETC. ETC.

PLANTS at JACKSONVILLE, FLA. LONG ISLAND CITY, N. Y. **CAPACITY** 100,000,000 Ft. B. M. Per annum.

RAIL or WATER Shipments, FREE WHARFAGE, Large STORAGE YARDS and DOCKS.

We also MANUFACTURE Lumber, Sawn and Hewn Ties, Piles, Poles, Etc.
Both Yellow Pine and Cypress.

WE SOLICIT your INQUIRIES for CREOSOTED and UNTREATED PINE PRODUCTS.

STORM SEWERS MADE PERMANENT

When constructed of
EVERLASTING CREOSOTED PINE
and

THE COST IS REASONABLE TOO

Write us for particulars

CREOSOTED MATERIALS COMPANY, INC.

301 Queen & Crescent Bldg. - New Orleans, La.

Eastern Office:

District National Bank Bldg. - Washington, D. C.

Piles, Timbers

Cross Ties



Piling, Lumber

Paving Block

American Creosoting Co., Inc.

Louisville, Kentucky
Colonial Creosoting Co., Inc.
Bogalusa, Louisiana

Georgia Creosoting Co., Inc.
Brunswick, Georgia

THE SAVANNAH CREOSOTING COMPANY

INCORPORATED

PORT WENTWORTH, SAVANNAH, GA.

**CREOSOTED CROSS ARMS, LUMBER, TIES,
PILES AND POLES**

Private Wharf
on Savannah River

Capacity 50,000,000
Feet B. M. Per Annum

WESTERN UNION CODE

CREOSOTED LONG AND SHORT LEAF SOUTHERN YELLOW PINE

Structural Timbers, Cross Ties

Crossarms, Fence Posts

Piling, Poles

Wood Blocks

Lumber

We make shipments by rail or water. Inquiries given prompt attention. Estimates gladly furnished.

Give us an opportunity to quote on your requirements.

Pensacola Creosoting Company, Inc.
PENSACOLA, FLA.

AMERICAN CREOSOTE WORKS, NEW ORLEANS, LA. (INCORPORATED)

Creosoted Cross-Arms, Lumber, Paving Blocks,
Piles, Poles and Ties

Private free wharf for ocean vessels at New Orleans. Capacity 100 million feet board measure annually.

Western Union and A. B. C. 5th Edition Codes.
Plant at New Orleans, La. Plant at Louisville, Miss.
Winnfield, La.

GULFPORT CREOSOTING COMPANY

GULFPORT, MISS.

Send us your inquiries direct when in the market for creosoted materials of any description, or desire figures for preparing estimates.

FOR THE PREVENTION OF SAP-STAIN OR BLUING OF LUMBER

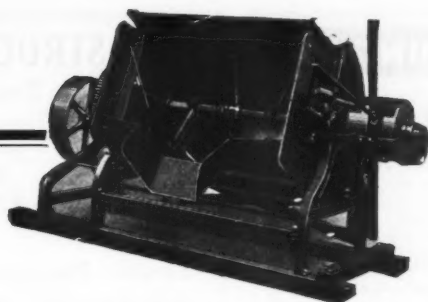
WE RECOMMEND OUR

ZENITH BRAND BI CARBONATE SODA

THE COST IS NOMINAL. NO EXPENSE FOR KILNS. NO FIRE RISK.
WRITE FOR PRICES, FREIGHT AND FULL PARTICULARS.
HIGHEST TEST GUARANTEED.

CHURCH & DWIGHT CO. MANUFACTURERS, 27 CEDAR ST. NEW YORK.
ESTABLISHED OVER 70 YEARS.





BLYSTONE

Batch Mixers Are Enthusiastically Endorsed

The BLYSTONE is the only mixer that will successfully mix concrete, mortar, hard-wall or the old-fashioned hair plaster. Built of the best materials which can be obtained, and by skilled workmen.

Thousands of BLYSTONE users will testify to the superior advantages of this machine. Ask any one of them.

BLYSTONE MANUFACTURING COMPANY

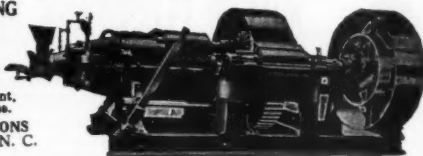
2-20 RECORD STREET

CAMBRIDGE SPRINGS, PENNA.

L. & P. MANUFACTURING COMPANY, NIAGARA FALLS, ONT., MANUFACTURERS AND DISTRIBUTORS FOR CANADA

CLAY WORKING MACHINERY

For Brick, Tile and Block, from smallest to largest capacity. Full line equipment. Write for catalogue. J. C. STEELE & SONS, STATESVILLE, N. C. U. S. A.



BRICK MACHINERY

and
BRICK YARD SUPPLIES

THE FERNHOLTZ BRICK MACHINERY CO.

Boyle and Vandeventer Avenues

ST. LOUIS, MO.

SOUTHERN CREOSOTING COMPANY, Ltd. SLIDELL, LA., U. S. A.

Twenty-eight miles from New Orleans, La., surrounded by the finest timber lands in the South. Facilities for shipping by water and rail.

Creosoted Ties, Telegraph Poles, Cross-Arms

Timber, Piles and Paving Blocks

Capacity 22,000,000 feet per annum.

A. B. C. Code used.

Cable Address, Creosote, Slidell, La.

Creopine
BLOCK FLOORS

FLOORS THAT LAST!

Creo-pine Block Floors outlast the plant and effect maximum floor economy.

Assure freedom from floor repair or replacement costs.

SOUTHERN WOOD PRESERVING COMPANY
Atlanta, Ga.

Creo-pine conduit, cross arms, fence posts, cross ties, timber and piling

Brick, Tile and Fire-Proofing Machinery



Union Brick and Hollow-ware Machine

An Auger Machine and Pug Mill in one construction—less expensive to install and more economical to operate. A positive forced feed into the auger obtainable with no other type of machine.

We build Union Machines, separate Auger Machines, Automatic and Hand-power Cutters, Pug Mills, Crushers, Hoists, etc., and can furnish everything necessary for completely equipping a modern building brick, paving brick, fire brick, drain tile, hollow block, chemical tile, or fire-proofing plant.

E. M. FREESE & COMPANY

GALION, OHIO

CORTRIGHT METAL SHINGLES**Since 1893**

"There is a house in this town that was covered with Cortright Shingles before I came in 1893. This roof is good today. I find that even in the hardest storms a Cortright shingle roof does not leak."

J. T. Lovel, Dickson, Tenn.
Contractor and Builder

CORTRIGHT METAL ROOFING CO.
Philadelphia - Chicago

**THE STRUCTURAL SLATE CO.**

Pen Argyl, Pa.



Largest Producers of Structural Slate for Architectural and Industrial purposes.

Toilet Enclosures
Stairs

Shower Stalls
Laundry Tubs

Sinks and Sink Tops, Tanks, Vats, etc.

IMPERIAL ROOFING TILES

MADE BY

LUDOWICI-CELADON COMPANY

Write for Literature and Prices

GENERAL OFFICES - Monroe Building - CHICAGO, ILL.

STANDARD

SEPTIC TANKS For use with or without running water. The most efficient and satisfactory solution of sewerage disposal problems where regular sewerage is not available. Ideal for suburban homes, schools, industrial plants, mill villages and towns.

CONCRETE CULVERT PIPE Plain or reinforced. All sizes for highways and railroad construction work.

Inquiries Solicited
STANDARD CEMENT CONSTRUCTION CO.
Manufacturers
Wilmington, N. C.



VENDOR SLATE CO.
INCORPORATED
EASTON, PENNSYLVANIA

Largest Shippers of Roofing Slate in The World

Branch Offices:

WASHINGTON
PITTSBURGH
CLEVELAND
COLUMBUS

NEW YORK
CHICAGO
PHILADELPHIA
CINCINNATI

ST. LOUIS
MINNEAPOLIS
LOS ANGELES
WACO, TEXAS

**"UNIVERSAL" SEPTIC TANKS**

solve the sewerage disposal problem in unsewered communities. Can be used with or without running water. Logical installation for rural schools, suburban homes, mine and industrial villages. **CONCRETE PIPE**—shipped from factory or made on the job. Concrete Pipe **MOLDS**—we give you benefit of our experience.

Ask for catalog.

UNIVERSAL CONCRETE PRODUCTS CO.
NEW MARTINSVILLE, W. VA.

**ROBERTSON PROCESS METAL**

A Rust and Corrosion-Proof
Building Material for

Permanent Roofs, Siding and Trim

Write for Sample

H. H. ROBERTSON CO., Pittsburgh, Pa.

**MILLER FLUSHTANK SIPHONS**

SIMPLE, RELIABLE, AUTOMATIC

Also Sewage-Disposal Apparatus, Automatic Sewage Ejectors, Centrifugal Pump Outfits, Sewer Jointing Compounds.

PACIFIC FLUSH-TANK CO.

Write nearest office for catalog interested in.

CHICAGO

NEW YORK

**IMPORTERS AND JOBBERS
METALS, TIN PLATES AND ROOFING**

Gordon Metal Company

14th & Dock Sts.

RICHMOND, VA.

THE HAMMOND HEATING CO.

110-112 East Second Street - CINCINNATI, OHIO

Warm Air Heating System**"BILT-RITE" PIPE AND PIPELESS FURNACES**

Work Installed Anywhere

METAL SHINGLES

All Forms of Roofings

Galvanized Sheets

Sheet Metal Specialties

THE SOUTHERN SHEET & TIN PLATE CO.
ASHLAND KENTUCKY

LOWE'S METALLIC PAINTS

For Preserving Railroad Cars, Wagons, Agricultural Implements, Barns, Bridges, etc., has no equal. Fine grind and uniformity of color guaranteed.

Correspondence Solicited

Chattanooga Paint Company
CHATTANOOGA, TENN.

**Improve Your Finish!**

Our Advisory Board will gladly assist manufacturers in overcoming their paint and varnish difficulties—reduce finishing costs, develop new paint products. Send for booklet.

PITTSBURGH PLATE GLASS CO.

Milwaukee, Wis.

Newark, N. J.



THE 24 GREATEST AUTOS ARE THESE: "Old Hook 'er" Helps Make Them

Packard
Hudson
Paige
Oldsmobile
Liberty
Premier

Cadillac
Saxon
Studebaker
Cole
Lincoln
National

Marmon
Sheridan
Locomobile
White
Federal
Garford

Pierce-Arrow
International
Diamond T
Sterling
Republic
Autocar

If you want further particulars "Inquire at the office."

When Mr. Leland, the father of the CADILLAC and the LINCOLN came to Detroit with his partner, Falconer, and built his little shop the very first thing this Real Mechanic did was to "Hook 'er to the Biler."

When a while ago Mr. Albert Kahn, the great Detroit architect, designed an addition to the great Packard plant, he "Hooked 'er to the Biler."

THE AMAZING THING TO US RIDGWAYS IS

How any man with steam available and requiring elevator equipment can be led to buy anything but Ridgway Elevators in view of the fact that the greatest concerns all over the land like the SPICER MFG. CO. and the gentlemen above get these wonderful Elevators.

What is true in the Automobile Industry is true in Gas, Paper, Textiles, Steel, Iron and other lines.

The Big Fellows everywhere where steam is available

"Hook 'er to the Biler"

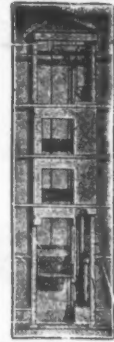
THE RIDGWAY & SON CO., Coatesville, Pa.
Elevator Makers to Folks Who Know



Direct Acting



Double Geared



Elevator in Large Soap Factory in Jersey City

AMERICAN
ELEVATORS

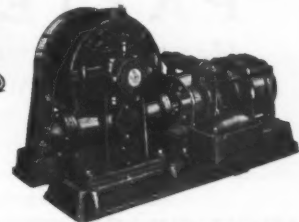
Build
by

AMERICAN ELEVATOR
and MACHINE CO.
INCORPORATED
LOUISVILLE, KY.



PASSENGER FREIGHT
HAND ELEVATORS BELT
ELECTRIC HYDRAULIC
REEDY ELEVATOR CO.
11 W. SECOND ST.
CINCINNATI OHIO

Westbrook
ELEVATORS



Single Wrap Traction Type Machine

The Westbrook is the result of careful study and tests of competent engineers.

FOR PASSENGER AND
FREIGHT SERVICE

WESTBROOK ELEVATOR MANUFACTURING CO., Inc.
DANVILLE, VIRGINIA

ELEVATORS

KIMBALL BROS. CO.
COUNCIL BLUFFS, IOWA.

PASSENGER FREIGHT 1125 Ninth St. DUMBWAITERS HAND POWER ELECTRIC
A Complete Line
We can change your hand power to electric

ELEVATORS MOFFATT MACHINERY MFG. CO.
HAND-BELT-ELECTRIC
AND HYDRAULIC
MACHINISTS AND FOUNDERS
CHARLOTTE, N. C.

WARSAW ELEVATOR COMPANY
T. FRANK WILHELM, Manager
SPECIAL ATTENTION GIVEN TO REPAIRS
Office and Warehouse
Mercer, Grant and Water Sts. BALTIMORE, MD.

W. J. WESTBROOK ELEVATOR CO.
Manufacturers of
Passenger and All Types Freight Elevators
Factory and Main Office
Greensboro North Carolina

THE McINNERNEY COMPANY
Makers of
Passenger and Freight ELEVATORS of all kinds
COUNCIL BLUFFS, IOWA

Standard for nearly half a century.
Passenger and Freight-
All Powers.

TURNER ELEVATORS
K. C. ELEVATOR MFG. CO.
(Established 1881)
2601-3-5-7 Madison Ave., Kansas City, Mo.

CONTRACT WORK WANTED

Castings, Special Machinery, Forgings, Machine Work, Etc.



KEATOR SAFETY CLIP

Guaranteed to take the place of any four common clips. Will not cut the wire rope or permit it to slip.

Sample furnished on request

MAL-GRA CASTINGS COMPANY

Manufacturers of high grade malleable castings
CAMBRIDGE CITY, INDIANA

Dixie Brass & Foundry Company

Brass, Copper, Bronze, Grey Iron and Semi-Steel and Aluminum Castings, Wood and Metal Patterns, Alloys of Every Description

Works: 6th Avenue and 13th Street, N.
BIRMINGHAM, ALA.

STEEL CASTINGS

Weighing from 1 lb. to 300 lbs. each

Suitable for Dogs, Clamps, Wheels, Pinions and other castings where strength is required.

Used almost exclusively for Automobile Work.

Quick deliveries. Your inquiries solicited.

CRUCIBLE STEEL CASTING CO., Lansdowne, Del. Co., Pa.

PATTERNS

May we have your inquiries

American Pattern Works Company
YORK, PA.

Small DROP FORGINGS TO ORDER

THE SCRANTON FORGING COMPANY
SCRANTON, PA.

WE MAKE A SPECIALTY OF HIGH GRADE GREY IRON AND SEMI-STEEL CASTINGS

All Kinds of Machine Work. Special Machines Made to Order.
Prices Will Suit You. Prompt Service.

Salem Foundry & Machine Works Salem, Va.

MACHINE AND DROP FORGINGS

QUALITY GUARANTEED PROMPT SHIPMENT
No Order Too Large—None Too Small for Our Careful Attention

THE COLUMBUS FORGE & IRON COMPANY
COLUMBUS, OHIO

MURPHY'S HOTEL Richmond, Va.

Virginia's largest and Richmond's most centrally located Hotel.

Every car line in the City passes Murphy's.

Rooms single and en suite.

Railroad tickets sold and baggage checked at Hotel.

Main Hotel and Grace Street Annex fireproof. Rates \$1.00 and Up

JAMES T. DISNEY, Manager

We carry large stocks

Steel and Iron Rounds,

Nuts, Track Bolts and

Spikes

BOLTS-STUDS TIE RODS-STAYBOLTS

ATLANTA BOLT AND
STEEL PRODUCTS CO.

193 S. HUMPHRIES ST.,
ATLANTA, GA.

Baltimore's Newest and Largest Hotel

Located in the heart of the wholesale and retail sections. Well lighted Sample Rooms. Attractive Cafeteria at Popular Prices. Beautifully decorated private dining rooms. Large Ball-room or Convention Hall, seating 500 people. Open Air Roof Garden (Open Season)



Every Room with private bath or shower

Rooms at \$4.00 per Day and Up

The SOUTHERN HOTEL
Fireproof Modern Convenient

LIGHT AND REDWOOD STS.
BALTIMORE, MD.

For 36 Years } **HILL** { has meant highest reputation in Foundry Supplies

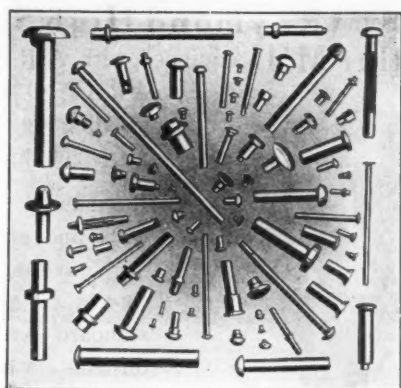
Facings, Plumbago, Core Compound,
Parting and Every Foundry Requirement.

Write for prices.

THE HILL & GRIFFITH CO.,

Factories and Offices:
CINCINNATI, OHIO
BIRMINGHAM, ALA.

Warehouse:
CHICAGO, ILL.



MACHINE SCREWS

Hexagon and Square Iron and Brass Nuts.
Interchangeable Bolts and Nuts (Promco
Brand) Special Screws and quality Rivets to
order.

Submit samples and advise as to quantity.
Catalog for the asking.

THE PROGRESSIVE MANUFACTURING CO.
TORRINGTON, CONN.

FREEPORT Sulphur Company

LOCATION OF MINES

Freeport, Texas, Mouth of Brazos River

NEW YORK OFFICE

61 Broadway

SELLING AGENTS

PARSONS & PETIT, 63 Beaver Street, New York

Miners and shippers crude sul-
phur in carloads or shiploads.
Guaranteed ninety-nine and one-
half per cent. pure.

Mines located at Tidewater on the Gulf of Mexico.
Excellent facilities for prompt steamer loading.
Complete service by rail.

Davison Chemical Co.

ESTABLISHED 1832

Largest and Oldest Sulphuric Acid Plant
in the United States

SULPHURIC ACID

ALL GRADES

Also Manufacturers of

Acid Phosphate

OFFICERS:

C. WILBUR MILLER.....President
GEORGE W. DAVISON.....Vice-President
E. B. MILLER.....Vice-President
W. D. HUNTINGTON.....Vice-President
J. R. WILSON.....Secy. and Asst. Treas.

Main Office—Garrett Building
BALTIMORE, MD.

Works—Curtis Bay, Md.

Branch Office—2316 Equitable Bldg., New York

PHOSPHORIC ACID

Electrically-Produced

50% H_3PO_4

75% H_3PO_4

Phosphoric Acid Paste
Tri-Sodium Phosphate
and
Phosphoric Acid Products

"FEDERAL" PRODUCTS
OF HIGHEST QUALITY

FERRO-PHOSPHORUS

17-19% P

23-25% P

Federal Phosphorus Company

WORKS: ANNISTON, ALA.

BIRMINGHAM

ALABAMA



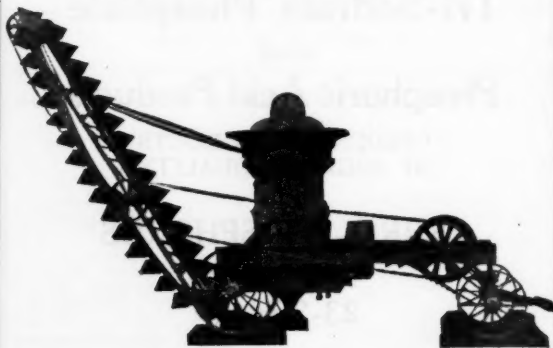
Everybody's Happy

By crushing, screening and storing rock obtained from nearby fields during the past winter, the Highways Improvement Company of South Bend, Indiana, secured the material for a six mile contract much cheaper than if they had had it shipped in, and at the same time kept their organization together and got rid of field stones and made money for the farmers in the district where the road was built.

A survey of the farms along the road was made after the contract was awarded and it was decided that enough stone could be secured from the fields to make it pay to put in a portable crushing and screening plant. The plant was set up at the middle point of the new road, and stone hauled in by farmers from within a radius of four miles.

Crushing and screening reduced the stone to four sizes ranging from dust to four inches. The several sizes were stored in separate piles more than twenty feet high by means of the conveyor, so little ground space was required and the material was in shape to be reclaimed quickly when taken out for the road.

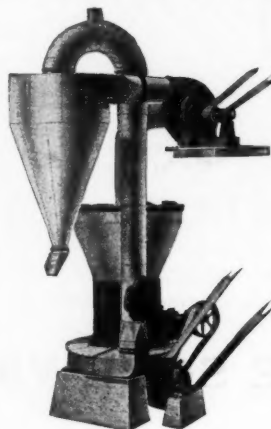
Catalog 29-M tells all about the No. 3 Austin Portable Gyratory Crushing and Screening Plant that helped to make this such a profitable venture. Write for your copy now.



Austin Manufacturing Co.

NEW YORK CHICAGO SAN FRANCISCO

This is the Raymond High Side Roller Mill equipped with AIR-SEPARATION for grinding to 200 mesh and finer.



RAYMOND for grinding to 200 mesh and finer.

Raymond Roller Mills and Pulverizers have become the accepted standard in all industries where fine powdered materials are required.

A new catalog giving valuable information on grinding questions will be sent for the asking.

Raymond Bros. Impact Pulverizer Co.

1304 N. Branch St.

CHICAGO

Eastern Office
50 Church Street
New York City

Western Office
1002 Washington Bldg.
Los Angeles, Calif.



Gruendler Grinders For Fertilize Materials

Have proved, in 80 per cent. of the leading fertilizer plants, their complete dependability. They are economical, durable and satisfactory in operation. Let us send you our illustrated bulletin giving prices, specifications and full details of the Gruendler Special Fertilizer Grinder.

GRUENDLER PATENT CRUSHER & PULVERIZER CO.
909 N. Main St., St. Louis, Mo.

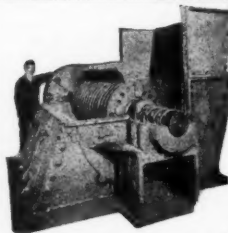


Buchanan Crushing Rolls

Used for reducing product from Jaw Crushers

Crushing Plants complete in all details.

C. G. BUCHANAN CO., Inc.
90 West St. New York, N. Y.



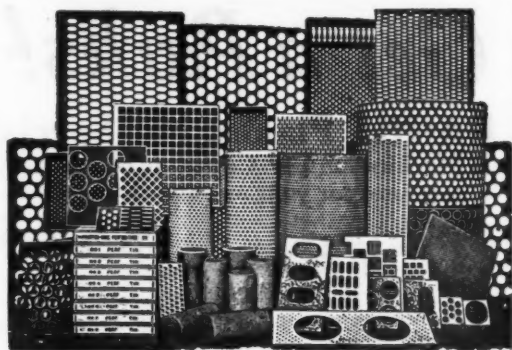
36' Stone to 1 1/2'

The Williams Mammoth crusher reduces 36" limestone to 1 1/2" in one operation, thereby taking the place of 3 or 4 ordinary crushers. It is just one of over 300 types and sizes of Williams Hinged Hammer crushers, grinders and shredders. They reduce stock food, tan bark, fertilizers, coal, clay or any other material. Tell us what you wish to reduce and let us furnish complete information.

Williams Patent Crusher & Pulverizer Co.
811 Montgomery Street, St. Louis, Mo.

Chicago New York San Francisco
37 W. Van Buren St. 15 Park Row 67 Second St.

Williams
PATENT CRUSHERS GRINDERS SHREDDERS



PERFORATED METAL

All Sizes and Shapes of Holes
In Any Kind of Metal

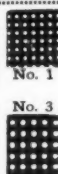
FOR USE IN

Cottonseed-Oil Mills	Pulp and Paper Mills
Fertilizer Works	Rice Hullers
Phosphate Plants	Textile Mills
Sugar Houses	Coal, Ore and Gravel Screens

THE HARRINGTON & KING PERFORATING CO.

114 Liberty St.
New York City

619 N. Union Ave.
Chicago



No. 1

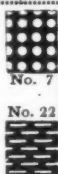
No. 3

MANHATTAN PERFORATED METAL CO.

Office and Works: 237-239 Centre St., New York

PERFORATORS

of All Kinds of Metals for All Industries
Write for Copper, Brass, Tin, Zinc or Aluminum
Catalog



No. 7

No. 22

CHRISTIE

DRYERS · CALCINERS · COOLERS

L. R. CHRISTIE COMPANY - Pittsburgh, Pa.
Consulting & Contracting Engineers

PERFORATED METALS HEADQUARTERS

Cotton Seed Oil Works a Specialty
Send for Samples

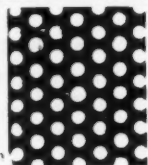
ERDLE PERFORATING CO. Rochester, N. Y.

DIGESTERS, ROTARY

DIRECT HEAT DRYERS STEAM JACKETED

CONTINUOUS STEEL SCREW PRESSES

EDW. RENNEBURG & SONS COMPANY
BALTIMORE, MD.



PERFORATED METAL SCREENS FOR ALL PURPOSES

Elevator Buckets, Conveyor Trough and Flights
Stacks and Tanks

General Sheet and Light Structural Work
Light and Heavy Steel Plate Construction

HENDRICK MFG. COMPANY, Carbondale, Pa.

New York Office 30 Church St.
Pittsburgh Office 644 Union Arcade Bldg.
Hasterton Pa., Office 705 Markle Bank Bldg.

Indirect Heat ROTARY DRYERS

Especially suitable for drying all kinds of GRANULAR MATERIAL

HERSEY MANUFACTURING CO., South Boston, Mass.

Complete Plants for Washing and Preparing Hematite Ores and Phosphate Rock

WASHERS, Wood or Steel Logs. ORE JIGS for Hard Service.
ELEVATORS, All Steel CONVEYORS, All Steel.

REVOLVING SCREENS of All Kinds.

Catalogue for the Asking

McLANAHAN-STONE MACHINE CO., HOLLIDAYSBURG, PA.

Automatic Improved DRYERS For All Materials

Economical Efficient Great Capacity

American Process Co., 68 William St., NEW YORK

PERFORATED METALS

We punch and perforate steel, copper, brass, zinc, aluminum, tin and all other metals to meet every requirement.

The experience of 43 years perforating metals is yours for the asking. Our illustrated catalogue will interest you. Copy sent on your request.

CHARLES MUNDT & SONS

490 Johnston Avenue

JERSEY CITY, N. J.

veneer MACHINERY

LATEST IMPROVED

FOUNDER & MACHINIST

E. E. TITUS

PETERSBURG, VA.

Shreveport Blow-Pipe and Sheet Iron Works

Exhaust Fans
Blow-Piping

Dust Collectors
Furnace Feeders

Sheet Iron Work
Complete System

SHREVEPORT BLOW-PIPE and SHEET IRON WORKS, Ltd.,
Shreveport, La.

SLOW SPEED FANS AND BLOW PIPE SYSTEMS

For Woodworking Factories and Dust Producing Machinery.
Complete Equipments Furnished and Installed.

National Blow Pipe & Mfg. Co., Ltd.

736 Dryades Street

New Orleans, La.

Mechanical Air Engineers

SAVANNAH BLOW PIPE CO., SAVANNAH, GA.



STORAGE TANKS
Absolutely Leak-Proof
and Durable, for Oil
and Gasoline

GENERAL STEEL PLATE WORK

SOUTHERN METAL CO., INC. Lake Charles, La.

Riveted Steel Plate Tanks

3/16" to 1/2" thickness
Pneumatic Water Supply,
Hot Water & Air Receivers.

HAMBURG BOILER WORKS

HAMBURG, BERKS COUNTY, PENNA.

Baltimore



Maryland



HORTON TANKS

Serve all Industries and Municipalities
SPRINKLER — OIL — MOLASSES — WATER SUPPLY
CHICAGO BRIDGE & IRON WORKS

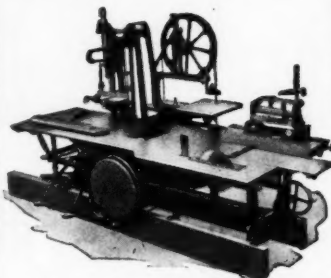
ATLANTA NEW YORK DALLAS
1045 Forsyth Bldg. 3113 Hudson Terminal 1408 Preston Bldg.

Get a Parks!

PARKS Planing Mill Special
8 Machines in 1 — Complete Machinery
equipment for your woodworking shop —

\$525

Built right—priced
right 10 years' guar-
antee. 10 days' trial.



Swing Cut-off saw,
circular, rip and
cross-cut saws, band
saw, shaper, jointer,
mortiser, borer and
sander.

Angle-steel frame. Vibrationless. No special foundation
needed. Does everything in woodworking. This machine
in your shop will save your pay-roll; one man with a
Parks can do the work of six by hand.

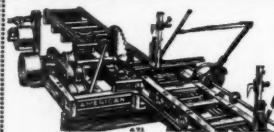
Send for complete catalog and description of this machine.

THE PARKS BALL BEARING MACHINE CO.

1544 Knowlton Street
CINCINNATI, OHIO

Canadian Factory: 200 Notre Dame East, Montreal, Canada

WOODWORKING **PARKS** MACHINES



SAW MILLS and
WOODWORKING MACHINERY
CONTRACTORS' WOODWORKERS
and HOISTS

Catalog on request
69 Main St.
Hackensack, N. J.

American Saw Mill Machinery Co.,



DUST COLLECTING
CONVEYING
RECOVERING **AIR** CONVEYING
DRYING
SEPARATING

Engineering Without Obligation

Allen Engineering & Manufacturing Co.

P. O. Box 1411 SAVANNAH, GEORGIA

CORMACO

ENGINES BOILERS

SAW MILLS


Complete outfits 5M to 50M feet

A Good Saw Mill for your Tractor

MILL SUPPLIES

CORINTH MACHINERY CO.

CORINTH, MISS.



**Steel Throughout
for Permanence**

The installation of a Caldwell Hemispherical Tank and Lattice Column Tower is the final solution of large water supply problems. The rugged construction of this combination, the excellence of the carefully selected materials and the painstaking workmanship make it the choice of exacting engineers.


The tank, conservatively designed and amply riveted; erected in our shops before shipping to ensure easy assembly at destination. The tower, a model of modern structural steel work.

Send for Catalog
W. E. Caldwell Co., Inc.
1900 Brook St., Louisville, Ky.

Caldwell
TANKS
AND
TOWERS

ESTABLISHED 1892

AIR-TIGHT STEEL TANK CO.
PITTSBURGH, PA.



TANKS

STEEL TANKS—For pressure or plain storage—riveted, welded, or genuine copper-brazed construction—the tightest, strongest, safest tank it is possible to construct by any known process.

**STEEL TANKS for All Purposes
STEEL STACKS**
—and—
General Fabricated Plate Metal Work

We Have in Stock, Ready
for Shipment

11,000-Gal. Oil Storage Tanks

DOWNTOWN IRON WORKS
Office and Works: Downingtown, Pa.



**STEEL TANKS
and TOWERS**

For Water Supply
and Fire Protection

ANY SIZE ERECTED ANYWHERE

Manufacturers of
BOILERS AND ENGINES

Write for prices

R. D. COLE MFG. CO.
NEWNAN GEORGIA




Davis Cypress Tanks

Thousands of Davis tanks in use, many of them 20 to 30 years old, are convincing proof of the wonderful durability of cypress, and the skill of Davis workmen.

Supplied in any size or shape—get our price on a tank or a tank and steel tower. Write for catalog.

G. M. DAVIS & SON
PALATKA, FLA.
Established 1888



TOWERS & TANKS

WALSH & WEIDNER
Towers and Tanks are correct in design. Their simplicity contributes to their low cost of maintenance.

Our shop equipment includes the best for production, and our facilities for quick shipment are unexcelled.

Our estimate on your next requirements will save you money.

The Walsh & Weidner Boiler Co.
CHATTANOOGA, TENN.



**WOODEN
TANKS**

of every description, built to special order. Our factory is up to date, being equipped with modern machinery.

We maintain a Special Department for the purpose of co-operating with Engineers and Chemists.

This enables us to advise the most suitable material and construction of tanks for particular need.

Write for our catalog, which tells the whole story.

Hauser-Stander Tank Company
CINCINNATI OHIO

PITTSBURGH OFFICE: 506 Bakewell Bldg



Chattanooga Boiler & Tank Co.
418 10th Street
CHATTANOOGA, TENN.

If made of Steel, we make it.
Tanks anywhere for any service.

**Steel Riveted Pipe
Standpipes
Tanks on Towers**

We make dye tanks and also manufacture special work for chemical plants

DIRECTORY **ARCHITECTS ENGINEERS CHEMISTS GEOLOGISTS** **CONTRACTORS CHEMICAL ENGINEERS**

Detailed classification of specialized work undertaken by those having cards in this Directory will be found in Classified Index.

MILBURN, HEISTER & CO.

Architects

WASHINGTON, D. C.

O'BRIANT & YOST

Industrial Engineers

designs, Construction, Appraisals, Modern Sawmills and Southern Industries. Randolph Bldg. MEMPHIS, TENN.

DANIEL B. LUTEN

Designing and Consulting Engineer—
Reinforced Concrete Bridges exclusively. Associate Engineers in each State.

INDIANAPOLIS, IND.

TURNER, C. A. P.

Consulting Engineer.

M. Am. Soc. C. E. Reinforced Concrete and Structural Steel Bridges, Buildings and Manufacturing Plants. 627 First Ave. N. MINNEAPOLIS, MINN.

TURNER

ARCHITECTURAL SERVICE
Advice on Materials, Methods, Costs and Design. Building Drawings and Specifications made by Specialists. Daylight Factories in Particular. Quantity Estimates made for the Trade. Central Sav. Bk. Bldg. BALTIMORE

J. G. REID

Mechanical Engineer

Mem. Am. Soc. of Mech. Engrs.
MANUFACTURING PLANTS.
613 East 60th Street CHICAGO

DOULLUT & WILLIAMS CO., Inc.

Engineers and General Contractors
Designing—Engineering—Construction

NEW ORLEANS
HOUSTON, TEX. TAMPIO, MEX.

E. T. ARCHER & CO.

Consulting Engineers.
Power Plants, Water-works, Sewer Systems, Electric Lighting, Street Paving and Roads. Merchants Building. SHREVEPORT, LOUISIANA
New England Building KANSAS CITY, MISSOURI

BLACK & VEATCH

Consulting Engineers
Water Supply, Water Purification, Sewerage, Sewage Disposal, Power Plants, Valuations, Special Investigations and Reports. E. B. BLACK N. T. VEATCH, JR.
Mutual Building KANSAS CITY, MO.

OPHULS & HILL, Inc.

formerly
Ophuls, Hill & McCreery, Inc.
Consulting Engineers.
Ice Making and Refrigeration. Investigations and Reports.
112-114 W. 42nd St., NEW YORK CITY

RICHARD K. MEADE & CO.

Chemical and Industrial Engineers and Contractors—Chemical, Cement, Lime, Fertilizer, Stone Crushing and Agricultural Limestone Plants Designed, Built, Improved and Operated. Reports on Industrial Propositions. Technical Research.
11 E. Fayette St. BALTIMORE, MD.

WILEY & WILSON

Consulting Engineers. Plans, Specifications and Supervision. Steam and Electric Power Plants, Central Heating, Lighting and Mechanical Equipment for Colleges and other Institutions. Heating and Ventilation for School Buildings.
LYNCHBURG, VA.

WILLIAM S. LEE

Mem. Am. Soc. C. E.
Mem. Am. Soc. M. E.
Mem. Eng. Inst. Can.
Fellow Am. Inst. E. E.
Chief Engineer Southern Power Co.
Consulting Engineer
511 Fifth Ave. NEW YORK CITY
CHARLOTTE, NORTH CAROLINA

THE DANIEL M. LUEHRS CO.

Mechanical, Electrical, Industrial, Air Conditioning Engineers.
Chemical, Metallurgical Photomicrographical Laboratories.
118 St. Clair Ave. N. E. CLEVELAND, OHIO.

HUGH L. COOPER & CO.

General Hydraulic Engineering—
Including the Design, Financing, Construction and Management of Hydro-Electric Power Plants.
101 Park Avenue NEW YORK

GILBERT C. WHITE, C. E.

M. Am. Soc. C. E.
M. Am. Soc. M. E.
Consulting Engineer
Water-works, Streets and Power Plants.
DURHAM, N. C.

MARTIN J. LIDE

Consulting and Constructing Electrical and Mechanical Engineer
BIRMINGHAM, ALA.

FREELAND, ROBERTS & CO.

Consulting Engineers
Concrete and Steel Structures.
NASHVILLE, TENN.

GARDNER & HOWE

W. M. GARDNER,
Mem. Am. Soc. C. E.
H. N. HOWE,
Assoc. Mem. Am. Soc. C. E.
Engineers—Designs, Estimates and Supervision: Concrete Bridges, Viaducts, Buildings and other Structures.
Porter Bldg. MEMPHIS, TENN.

SOUTHEASTERN CONSTRUCTION COMPANY

Buildings & Bridges
Trust Building CHARLOTTE, N. C.

WALLACE & CRENSHAW

Engineers
Designs, Estimates, Specifications, Superintendence of
Reinforced Concrete, Mill Construction, Bridges, Highways, Sewerage, Paving, Water Supply.
Empire Bldg. KNOXVILLE, TENN.

THE M. A. LONG CO.

Engineers and Constructors
Horn & Horn Bldg.
NEW YORK BALTIMORE, MD.

FRANCIS R. WELLER

M. Am. Inst. E. E.
M. Am. Soc. C. E.
Consulting Engineer—
Hydro-Electric and Steam Power Plants, Reports, Appraisals, Designs, Construction, Properties of Steam.
201-205 Mills Bldg. WASHINGTON, D. C.

B. H. KLYCE

M. Am. Soc. C. E.
Engineer
Municipal, Highway, Structural, and Drainage Improvements.
720 Fourth and First National Bk. Bldg. NASHVILLE, TENN.

DOW & SMITH

A. W. Dow, Ph.B.; F. P. Smith, Ph.B.
Mem. AM. Inst. Ch. Engrs.
Mem. AM. Soc. Civ. Engrs.
Chemical Engineers—Consulting Paving Engineers—Asphalt, Bitumens, Paving, Hydraulic, Cement, Engineering Materials.
191-3 E. 23d Street NEW YORK

WILEY & COMPANY, Inc.

Analytical and Consulting Chemists—
Experts on Fertilizer Materials, Coal, Greases, Foods, Drugs, Dairy Products, Chemical and Bacteriological Examinations of Water for Domestic and Manufacturing Purposes.
Calvert and Read Sts. BALTO. MD.

CLARK & KREBS

J. M. CLARK, Mem. A. I. M. E.
C. E. KREBS, Mem. A. I. M. E.
Q. R. KREBS, J. W. MORRAN,
Civil and Mining Engineers and Geologists—Coal, Oil, and Gas. Railroad and Municipal Engineering.
CHARLESTON, W. VA.

HOCHSTADTER LABORATORIES

Chemical Analyses, Consultants, Technical Experts, Investigations, Litigation.
Coal, Oil, Water, Paving Materials, Foodstuffs, Gelatin, Dairy Products, Confectionery, Drugs, Minerals, Textile Materials etc.
227 Front Street NEW YORK

THE CAROLINA ENGINEERING CO.

Civil and Sanitary Engineers
Sewers, Water-works, Paving, Highways, Railroads.
WILMINGTON, N. C.

JOHN A. STEEL, JR.

Structural Engineers
The design and erection of concrete and steel structures.
Holston Bank Building. KNOXVILLE, TENN.

W. N. WILLIS

Civil Engineer—
Surveys, Plans and Estimates for Sewage Disposal, Railroads, Highways, Property Development, Power Development, Landscape Architecture, Superintending of Buildings and Concrete.
SPARTANBURG, S. C.

M. P. BURT & CO.

Packing House and Cold Storage Engineers and Architects.
Why not build them right and save money by getting high efficiency.
208 Falls Bldg. MEMPHIS, TENN.

McDEVITT-FLEMING CO.

Engineers and Contractors—Specializing in Reinforced Concrete and Modern Building Construction. We solicit your inquiries, Plans and Specifications.
Office 409-11 First Nat'l Bank Bldg. CHATTANOOGA, TENNESSEE

ALBRIGHT & MEBUS

Municipal Engineers
Town Planning, Street Paving, Sewerage and Sewage Treatment.
Investigations Reports and Valuations.
907 Land Title Bldg. PHILADELPHIA, PA.

CLARK A. LUTER

Analytical and Consulting Chemists.
Analysis of minerals, ores, water, fertilizers, oils, food products, glass and pottery materials.
17 S. Gay St. BALTIMORE, MD.

HERMANN EISERT

Consulting Engineer—Mechanical Equipment of Private, Public and Industrial Buildings. Manufacturing Establishments and Power Plants.
601 Hoffman Bldg.
11 E. Lexington St. BALTO., MD.

FROEHLING & ROBERTSON

Richmond Testing Laboratory.
Chemists and Economic Geologists—
Analyses of all kinds. Waters and fertilizers specialties. Standard Cement Testing Examinations and Reports on Mineral Properties.
813 E. Franklin St. RICHMOND, VA.

O. OLSON

Designing and Supervising Engineer. Certified Member A. A. E. Reinforced Concrete, Modern Mills and Machinery for Southern Industries. Sewer and Drainage Investigation. Valuations and Reports. Buy, Sell and Trade Industrial Plants, Timberlands, Etc.
8 Balwin Bldg. JACKSONVILLE, FLA.

E. S. DRAPER

Landscape Architect and City Planner
Member of American Society of Landscape Architects.
CHARLOTTE, N. C.

CHARLES T. MAIN

Member A. S. M. E.
Textile Mills—Water-power Developments.
200 Devonshire Street BOSTON

Howard N. Eavenson & Associates

Mining Engineers
Examination and reports on coal properties—design, construction and electrification of coal plants—plans for concentrated mining systems—improvement of operating properties—valuations.
1302 Union Arcade Building. PITTSBURGH, PA.

CANAL CONSTRUCTION COMPANY

Drainage and Levee Contractors.
189 W. Madison St. CHICAGO, ILL.
McCall Bldg. MEMPHIS, TENN.

GREINER & COMPANY, J. E.

Consulting Engineers
Design, Construction, Investigation, Advisory Services—Bridges, Docks, Piers, Warehouses and other Engineering Structures.
403 Fulton Bldg. PITTSBURGH, PA.
LEXINGTON, MD.

BERKELEY, W. N.

Analyses and Tests.
Cement, Concrete, Lime, Sand, Metals, Minerals, Paints, Fuels, Oils, Waters, Foods and Drugs.
Industrial Research by Expert Chemists and Engineers.
12 Clay St. BALTIMORE, MD.

McWILLIAMS COMPANY, Inc.

Drainage and Levee Contractors.
Exchange Bldg. MEMPHIS, TENN.

F. K. ASHWORTH

Civil Engineer
Municipal, Structural and Drainage Improvements, Town Planning, Reports on Florida Projects.
Columbia Bldg., MIAMI, FLA.

N. C. MCGINNIS & COMPANY

Land Drainage and Canal Construction
DEALERS IN DRAINAGE BONDS
1704-5 Exchange Bldg. MEMPHIS, TENN.

J. A. FOUILHOUX

Mem. Am. Soc. C. E.
Mem. Am. Soc. H. & V. E.
Architect and Consulting Engineer
Mill, Reinforced Concrete and Steel Buildings and Factories
7 West 42nd St. NEW YORK CITY

DIRECTORY

**ARCHITECTS
CONTRACTORS**
ENGINEERS
**CHEMISTS
CHEMICAL ENGINEERS**
GEOLOGISTS

Detailed classification of specialized work undertaken by those having cards in this Directory will be found in Classified Index.

Ford, Bacon & Davis

Incorporated

Business Established 1894
115 Broadway, New York
Philadelphia Chicago San Francisco

THE J. G. WHITE ENGINEERING CORPORATION

Engineers—Contractors

43 Exchange Place NEW YORK

SCOFIELD ENGINEERING COMPANY

Consulting, Designing and Supervising Engineers

TEXTILE—MECHANICAL—ELECTRICAL—CIVIL

Commercial Trust Building PHILADELPHIA

DAY AND ZIMMERMANN, Inc.

NEW YORK PHILADELPHIA CHICAGO

ENGINEERING - CONSTRUCTION - REPORTS
MANAGEMENT - VALUATIONS

W. D. MOUNT, M. E.

Member A. S. M. E. and A. C. S.
Consulting Mechanical and Chemical Engineer

Expert in Alkali Manufacturing and Plant Design, Limekiln, Continuous Causticizing, Rotary Filters, Twenty-four years' practical operating experience.
People's National Bank Bldg. LYNCHBURG, VA.

W. A. YOUNG, President. GEO. S. JONES, Vice-President
R. H. JONES, Sec'y and Treas.

CORNELL-YOUNG COMPANY

INCORPORATED

General Contractors

MACON GEORGIA

TUCKER & LAXTON

Contracting Engineers

Filters, Concrete Work, Hydro-Electric and Steam Electric Construction.
CHARLOTTE NORTH CAROLINA

GEORGE B. HILLS CO.

Successors in the South to Isham Randolph & Co.

Drainage, Docks and Terminals, and Structural Design

Associated: Mr. Wm. O. Sparklin, M. A. I. A.

Suite 36, Barnett Building JACKSONVILLE, FLA.

MORSE AGRICULTURAL SERVICE

Examinations and Reports on Lands, Farms, Plantations, Ranches—Plans, Estimates, Management—A Service for Farm Owners Who Wish Larger Profits.

NEW YORK NEW ORLEANS
132 Front St. 1412 Hibernia Building

WALTER A. ALLISON

Consulting Engineer—Specialist in the design, construction and supervision of Gas Properties, Reports, Appraisals, Rate Development.
403 Wister Street. PHILADELPHIA

M. O. & W. ENGINEERING CORP.

Civil, Electrical, Mechanical and Mining Service.

NORTON, VIRGINIA

S. R. BATSON

Civil Engineer

Member of Federal Highway Council, State Highway Com. of Alabama. Highway Engr. of Jefferson County 12 yrs. Consulting Engineer for Bessemer, Ala. 420 Jefferson County Bank Building BIRMINGHAM, ALA.

HUTTON & SCHREFFLER

Architectural Engineers.

Engineering Service to Architects; Design and Supervision of Reinforced Concrete and Steel Structures; Warehouses and Industrial Buildings.
RALEIGH, N. C.

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS

Wm. Barclay Parsons Engineers H. M. Brinckerhoff
Eugene Klapp W. J. Douglas

DESIGNING, ESTIMATES, SUPERVISION, APPRAISALS
EXAMINATIONS AND REPORTS.

PARKLAP CONSTRUCTION CORPORATION

Construction by Force Acct., Fixed Fee or Cost Plus.

NEW YORK CLEVELAND
84 Pine St. 743 Hanna Building

DWIGHT P. ROBINSON & COMPANY

INCORPORATED

Engineers and Constructors of
Industrial Plants, Power Plants, Railroad Work

CHICAGO 125 East 46th Street, NEW YORK
LOS ANGELES YOUNGSTOWN DALLAS
MONTREAL RIO DE JANEIRO

BYLLESBY ENGINEERING & MANAGEMENT CORP.

208 S. La Salle Street

CHICAGO

NEW YORK TACOMA

WE HAVE NOTHING TO SELL BUT OUR SERVICES

W. E. BIGGS ENGINEERING COMPANY

Designing, Consulting and Construction Engineers

MECHANICAL—ELECTRICAL—INDUSTRIAL

Holston Bank Building KNOXVILLE, TENN.

Robert W. Hunt Jno. J. Cone D. W. McNaught

ROBERT W. HUNT & COMPANY

INSPECTION AND TESTS Engineers

Steel and Cement for Bridges and Buildings. Railroad Material and Equipment
Chemical, Physical and Cement Laboratories. Treated and Untreated Lumber.
Chicago New York Pittsburgh San Francisco
Dallas New Orleans Boston St. Louis

E. V. CAMP AND ASSOCIATES

Consulting, Designing, Supervising and Testing Engineers

Highway and Street Paving, Bridges, Sewers, Waterworks, Electric Plants and
Mechanical Works, Laboratory and Plant Tests of Paving Materials.
P. O. BOX 421 ATLANTA, GA.

GODFREY M. S. TAIT

Member
American Society of Mechanical Engineers
American Institute Mining and Metallurgical Engineers
American Association of Engineers
Valuations and Appraisals

Reports on Coal Properties prepared for the guidance of Investors and Bankers.
808 18th St., N. W. Telephone Main 1738 WASHINGTON, D.C.

HUNTINGTON & GUERRY, Inc.

Contractors

Electric Power and Lighting Installations for Industrial Plants
Textile Mills a Specialty.

COMPLETE ELECTRICAL
REPAIR SHOP



GREENVILLE
SOUTH CAROLINA

THE SMITH COMPANY

Industrial Builders

JULIAN P. SMITH W. R. WILLIAMS
A. M. Am. Soc. C. E.

We Build All Classes of Industrial Plants, Water
Systems, Brick and Concrete Structures

Reliability—Speed—Accuracy

30 Third Ave. N. W. BIRMINGHAM, ALA.



THE J. B. McCRARY COMPANY

Engineers

ATLANTA

GEORGIA

MUNICIPAL IMPROVEMENTS

We design and construct Water-works, Electric-light and Sewer Systems—Paving
and Road Work.

DIRECTORY

ARCHITECTS
CONTRACTORS
ENGINEERS
CHEMISTS
CHEMICAL ENGINEERS
GEOLOGISTS

Detailed classification of specialized work undertaken by those having cards in this Directory will be found in Classified Index.

NORMAN ALAN HILL

(Established 1910)

Industrial Counsel

405 ST. PAUL PLACE

MANAGEMENT ENGINEERS
SALES FINANCE PRODUCTION

Associate Connections

New York Cleveland Chicago Philadelphia Pittsburgh Detroit

JNO. D. EDWARDS

(Established 1907)

Accountant and Auditor

BALTIMORE, MD.

WALLER CROW, INC.

**COUNSELORS IN INDUSTRIAL
OPERATION & FINANCE**

NON-METALLIC MINERALS: Clays—Shales—Kaolin—Spars—Limestone—Sands

—Gravels—Cements.

Analysis—Investigations—Reports on Properties—Plant Design—

Engineering—Counsel.

327 S. LaSalle St.,

CHICAGO, ILL.

PARKES ENGINEERING CO.

Designing and Supervising Engineers

 WATER-WORKS, SEWERS, PAVEMENTS, ROADS, DRAINAGE, LEVEES.
 CITIZENS BANK BUILDING PINE BLUFF, ARKANSAS.

**SPIKER & LOSE
ENGINEERS**

 510-20 Forsyth Building Atlanta, Georgia
 Reports, Appraisals, complete plans and or supervision on Industrial Plants,
 Hydro-Electric Projects, Warehouses, Bridges and Viaducts.
CONSULTANTS TO ARCHITECTS
 on Office, Hotel, Theatre, Auditorium, Store and Public Buildings.

JAMES POSEY

Mem. A. S. M. E.

Mem. A. S. H. & V. E.

Consulting Engineer

 Power Plants, Refrigerating, Electric Plants, Heating, Ventilating, Lighting,
 Wiring, Elevators, Conveyors, Plumbing, Sewerage Disposal, Sprinkler Equip-
 ment, Fire Protection, Water Works, Factory and Manufacturing Plants.
 11 E. Pleasant St. BALTIMORE, MD.

THE CONCRETE STEEL BRIDGE CO.

Clarksburg, W. Va.

REINFORCED CONCRETE

 Bridges Buildings Coal Mining Plants
 HUNTINGTON, W. VA. KNOXVILLE, TENN. JACKSON, MISS.

THE AMERICAN APPRAISAL COMPANY

Authoritative Valuations and Reports on all Types of Properties.

BALTIMORE—NEW ORLEANS—ST. LOUIS—ATLANTA

CINCINNATI—MILWAUKEE—NEW YORK

THE S. R. SMYTHE COMPANY

Engineers

PITTSBURGH, PA.

Contractors

 Steel Works, Rolling Mills, Blast Furnaces, Hot Blast Stoves, Furnaces for All
 Purposes. Operated with Producer Gas, Natural Gas, Oil, or Pulverized Coal.
 Coke Ovens, Gas Producers, Hand-operated or Mechanical.
 The Voice of the Era: SCHILD SLIDING GAS AND AIR-REVERSING VALVES
 PITTSBURGH PENNSYLVANIA

PITTSBURGH TESTING LABORATORY

Inspecting Engineers and Chemists

 Inspection of Cement, Cressed Timber, Cast-iron Pipe, Railroad Equipment,
 Machinery and Road Materials, Chemical Analyses and Physical Tests.
 Inspection of Bituminous Pavement Construction.

PITTSBURGH

BIRMINGHAM

DALLAS

DETROIT

CINCINNATI

CLEVELAND

NEW YORK

CHICAGO

CRAWFORD & SLATEN

Pipe Fitters, Engineers & Contractors

Automatic Sprinkler Systems

Mill Heating, Engine and Boiler Connections.

901 Austell Bldg.

ATLANTA, GA.

M. H. AVRAM & COMPANY, Inc.

Engineers—Industrial Managers

Investigations and Reports

Design and Development of Product or Equipment

Technical and Commercial Research

Management

360 Madison Avenue
NEW YORK CITY950 Munsey Bldg.
WASHINGTON, D. C.
HYDE & BAXTER

Contracting Engineers

General Construction Of All Classes

WASHINGTON, D. C.

FRASER, BRACE & COMPANY, Inc.

Contracting Engineers

 Hydro-Electric Developments—Dams—Bridges—Power Plants—Industrial Plants—
 Railroads—Difficult Foundations—Caissons—Docks.

23 Pearl St.

NEW YORK CITY

ROACH & STANSELL

Railroad & Levee Contractors

North Memphis Savings Bank Building

MEMPHIS, TENN.

GEORGE CONSTRUCTION CO.

Incorporated

 Designers and Constructors,
 Stock Exchange Bldg.

 Underground Conduit Systems,
 PHILADELPHIA

E. A. BURROWS

Consulting, Designing and Contracting Engineer

 Ice-Making and Refrigeration Plants and equipment constructed and financed
 Security Building CHICAGO

GREENWOOD ENGINEERING CO.

Contracting Electrical Engineers

 Underground Cables for Light, Power and Telephones
 Industrial Plants—Sub-Station

Stock Exchange Bldg.

PHILADELPHIA, PA.

F. E. MARKEL

Mechanical Engineer

 Consulting, Designing and Supervising Mechanical Equipment of Buildings
 Heating and Ventilating—Steam Power Plants—Elevators—Electrical Layouts—
 Plumbing and Sanitary Systems—Water Supply—Refrigeration
 Chemical and Special Piping.

217 Rhodes Building

ATLANTA, GA.

ARCHITECTS

ENGINEERS

CONTRACTORS

Your card on these pages will place you directly

before the active forces of the South

and Southwest

DIRECTORY

ARCHITECTS CONTRACTORS

ENGINEERS

CHEMISTS CHEMICAL ENGINEERS

GEOLOGISTS

Detailed classification of specialized work undertaken by those having cards in this Directory will be found in Classified Index.

W. A. SANDERS

SANDERS & SWEENEY Consulting Engineers

Civil—Mechanical—Electrical—Industrial
TEXTILE ENGINEERING A SPECIALTY
SOUTH CAROLINA

ANDERSON

F. H. SWEENEY

J. B. McCALLA

B. C. BARKER

J. E. WILLARD

J. B. McCALLA & CO. Civil and Municipal Engineers

Reports, Surveys, Maps, Estimates, Designs, Street Paving, Concrete Plain and Reinforced Water Supply, Sewers and Sewage Disposal.
709 Market Street KNOXVILLE, TENN.



WALTER J. FUSTON Structural Engineer

S. W. LIFE BLDG.

DALLAS

MEES & MEES

Consulting Engineers and Industrial Architects

Hydro-electric Developments, Power Plants, Factories and Industrial Plants, Railways, Bridges, Municipal Improvements and Highway Engineering.
Surveys, Reports, Designs, Supervision of Construction.
Third Floor Kinney Building CHARLOTTE, N. C.



WE LOOK INTO THE EARTH By Use of Diamond Core Drills

We test foundations for buildings, bridges and dams. We prospect coal and mineral lands in any part of North and South America.

PENNSYLVANIA DRILLING CO.
1812 W. Carson St., Pittsburgh, Pa.

CRUDE SULPHUR

Guaranteed 99% Pure
For use in Metallurgical field,
Fertilizer, Pulp, etc.

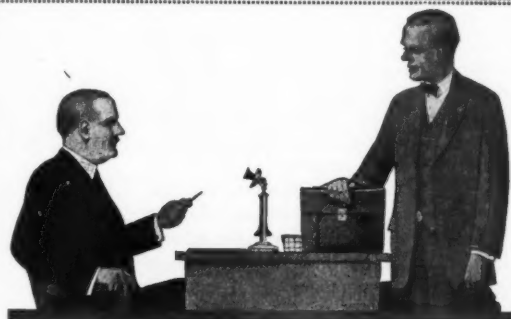
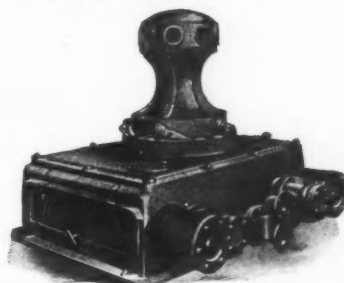
THE UNION SULPHUR CO.

Frasch Building, 33 Rector Street, New York City

AUXILIARY DECK MACHINERY

THE WORLD'S BEST STEERING ENGINES,
WINDLASSES, WINCHES AND CAPSTANS

Well Built
Serviceable
All Parts Interchangeable
The "Built Right Run Right Line"
The
Hadfield-Penfield
Steel Company
Successor to
The American Clay
Machinery Company
Bucyrus, Ohio



"IT'S YOUR ORDER, BECAUSE YOUR COMPANY HAS A PHOTOSTAT."

"This is a job where delivery is paramount. And, in every case, I have made it a point to find out what kind of equipment the bidder had in order to make good his promise.

"Your company has a piece of equipment on which I have learned to rely. I know what the PHOTOSTAT is and what it can do. I know you will not have to lose any time tracing. You can make PHOTOSTAT copies and get started on your shop work right away. In other words you'll be days ahead and I also know that there can't be any mistakes in PHOTOSTAT copies.

"Yes, sir. You tell your chief he can thank the PHOTOSTAT for this order. I know you'll make delivery with that machine to help you."

PHOTOSTAT prints cost cents. Compare this with what it costs for a draftsman to make a tracing, a stenographer to copy a page, or an artist to reproduce a layout. The experience of many users, written in letter form, are contained in our booklet, "A Good Word for the PHOTOSTAT". Write for your copy today.

PHOTOSTAT CORPORATION 295 STATE STREET ROCHESTER, N. Y.

89 Broad Street, Boston, 510 North American Bldg., Philadelphia,
123 W. Madison Street, Chicago, 317 Third Avenue, Pittsburgh,
209 Leader Bldg., Cleveland, 429 Monadnock Bldg., San Francisco,
7 Dey Street, New York City, 601 McLachlen Bldg., Washington,
Executive Office: Providence, R. I.

PHOTOSTAT

TRADE MARK

INDUCED VENTILATION

SCHOEDINGER'S ROTARY SUCTION VENTILATORS

induce suction on
the foul air in your
plant from the
power of passing
winds.

They are well
worth your inves-
tigation.



Also secure prices on Schoedinger's Universal Lock Joint Metal Ceilings, Kinnear & Gager Quad Lock Metal Ceilings, Underwriter's Fire Proof Metal Windows, Underwriter's Tin Clad Fire Doors.

F. O. SCHOEDINGER

Manufacturer and Distributer
of Sheet Metal Products

COLUMBUS - OHIO



Dividend checks from the American Telephone and Telegraph Company are received quarterly by more than 200,000 telephone users.

Owned by those it serves

Less than fifty years ago an application was made for a patent which created the possibility of speech between distant points. It was the culmination of years of study, research and experiment. It suggested a new aid in commerce and domestic life; a new tie to bind the people together. But it was only a suggestion—a dream.

To make that dream come true required the creation of an organization unlike any other. It demanded a kind of scientific knowledge that was yet to be formulated, as well as a type of equipment still to be devised. And it necessitated the financial and moral support of many communities.

Out of this situation grew the Bell System, bringing not only a new public service, but a new democracy of public service ownership—a democracy that now has more than 200,000 stockholders—a partnership of the rank and file who use telephone service and the rank and file employed in that service. The American Telephone and Telegraph Company exists

to serve the people and is owned directly by the people—controlled not by one, but controlled by all.

Evolution is going on. Each year the ownership is more widespread. Each year the various processes of the service are performed more efficiently and economically. Each year new lines and extensions are constructed. The responsibility of the management is to provide the best possible telephone service at the lowest possible cost and to provide new facilities with the growth of demand. To do these things requires equipment, men and money.

The rates must furnish a net return sufficient to induce you to become a stockholder, or to retain your stock if you already are one; after paying wages sufficient to attract and retain capable men and women in the service. They must adequately support and extend the structure of communication.

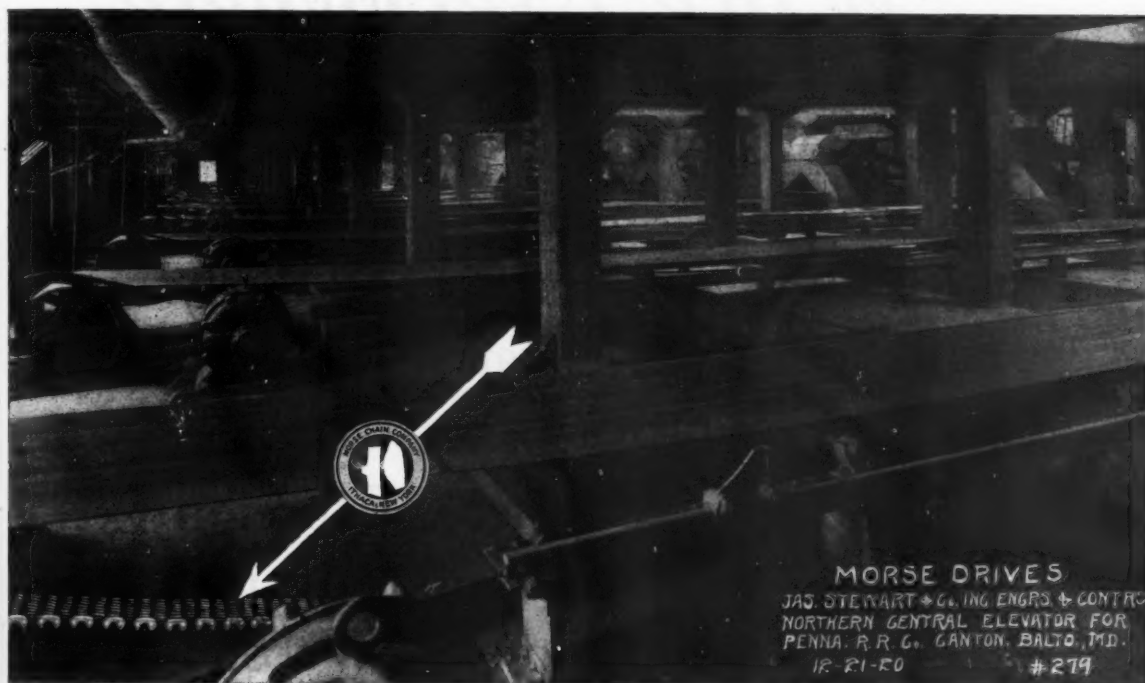
These are considerations for the interest of all—public, stockholders, employees.



"BELL SYSTEM"
AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES
One Policy, One System, Universal Service, and all directed toward Better Service



Their Tremendous Success Evident By Their Use



Morse Silent Chain Conveyor Belts Above Storage Bins of Annex No. 1, Northern Central Elevator, Baltimore.

Seventy-nine Morse Silent Chain Drives are used in the plant principally for driving belt conveyors. By their use 2525 horse power is transmitted from motors to conveyor head shafts, shovel drums and drier fans with a single reduction and the counter shafts usually employed with rope and belt drives, are eliminated. All were supplied by the Morse Chain Co.

Morse Silent Chain Drive has attained its leading position by results; has proven its efficiency, its durability, its low maintenance; it has increased production and lowered cost; it has brought out the concealed profits of slipping belts wherever the 3,000,000 h. p. now in use has been installed.

What are your transmission problems?—Submit them to us.

MORSE CHAIN COMPANY, ITHACA, N. Y.

Morse Engineering Service

BENEFIT BY MORSE SERVICE AS OTHERS DO

Assistance Without Obligation

Address Nearest Office



ATLANTA, GA. Chandler Bldg., Earl F. Scott & Co.
BALTIMORE, MD. 1402 Lexington Bldg.
BOSTON, MASS. 141 Milk St.
CHARLOTTE, N. C. 404 Commercial Bank Bldg.
CHICAGO, ILL. Merchants L. & T. Bldg.
CLEVELAND, OHIO. Engineers Bldg.
DETROIT, MICH. 1361 Abbott St.
KANSAS CITY, MO. Finance Bldg., Morse Eng. Co.
NEW YORK CITY. 30 Church St.

MINNEAPOLIS, MINN. South Third St., Strong-Scott Mfg. Co.
MONTREAL. St. Nicholas Bldg., Jones & Glasco Reg'd.
PHILADELPHIA, PA. Franklin Bldg.
PITTSBURGH, PA. Westinghouse Bldg.
SAN FRANCISCO, CAL. Monadnock Bldg.
ST. LOUIS, MO. Chemical Bldg., Morse Eng'g Bldg.
TORONTO. Bank of Hamilton Bldg., Jones & Glasco Reg'd.
WINNIPEG, MAN. Dufferin St., Strong-Scott Mfg. Co.



"Morse" is the Guarantee Always Behind the Efficiency, Durability and Service

Stone & Webster Work Everywhere

Stone & Webster have carried out engineering and construction work in three hundred and thirty cities in forty-one states and seven foreign countries.

On a notable variety of foreign work, American construction methods under Stone & Webster engineers are meeting with marked success.

STONE & WEBSTER

INCORPORATED



BOSTON, 147 Milk Street

SAN FRANCISCO, Holbrook Bldg.

NEW YORK,

120 Broadway

CHICAGO, 38 S. Dearborn Street

PITTSBURGH, Union Arcade

Manufacturers Record

Exponent of America

OCTOBER 5, 1922

Volume LXXXII

Table of Contents

Number 14

Wherein the Mills of the Gods, Though They Grind Slowly, Grind Exceeding Fine..... Cover Page

EDITORIALS 71-78

The Center of America's Anglo-Saxon Industrial Population.

Let Government Begin Refunding With Billion Dollar Issue of Two Per Cent Bonds, Having Circulation Privilege.

"Cheap Cotton."

Which Will You Choose, Lawlessness Which Endangers Life, Prosperity and Government Itself; or, Obedience to Law and Order—Heaven or Hell?

Branch Banking an Evil That Congress Should Destroy.

A Masterpiece of Printing.

Eastern Railroads Need to Wake Up.

Paying the Piper.

Wherein the Greatness of North Carolina Consists.

Building Activity in Rural Districts.

Dr. Charles W. Dabney, a Southern Scientific Leader, Locates in Texas.

Export and Import Values for 8 Months Compared With 1921 and 1913.

NEWS ARTICLES

Rebuke to the Wets Seen in Tremendous Republican Vote in New Jersey..... 78

Southern Improvement Bonds Sold Total \$243,000,000 for Nine Months..... 79

Significant Signs of Activity South..... 80

Merits and Demerits of Coal Storage.....By George H. Cushing 81

Made-In-Carolina Exposition Now Open..... 83

Extensive Additions and Improvements to Plant of Weirton Steel Co..... 84

South Active in Building and Industry—Over 43,000 Items Published in Construction Department of Manufacturers Record Since January 1..... 84

Relief to Agriculture Through Revival of War Finance Corporation Activities—By Henry C. Wallace 85

A Florida Sugar Producing Company's Operations.....By Ainslie A. Gray 87

Co-operative Marketing of Cotton and Tobacco—A Great Revolution Under Way in Handling Farm Products.....By Fred A. Olds 90

Canton Co. Terminals and Pennsylvania Railroad Grain Elevator, Baltimore..... 91

DEPARTMENTS

The Iron and Steel Situation..... 92

Railroads..... 93

Good Roads and Streets..... 96

Lumber and Building Materials..... 97

Textile..... 98

Mechanical..... 99

Construction..... 100

Machinery, Proposals and Supplies Wanted... 113

New Financial Corporations..... 116

New Securities..... 116

Trade Literature..... 118

Industrial News of Interest..... 120

PUBLISHED EVERY THURSDAY BY THE

MANUFACTURERS RECORD PUBLISHING CO., BALTIMORE, MD.

Branch Offices: New York, 30 Church St.; Chicago, 11 South La Salle St.; Boston, 734 Old South Bldg.; St. Louis, 915 Olive St.; Washington, Whaley-Eaton Service, 456-459 Munsey Building.

SUBSCRIPTION RATES

\$6.50 a year (in advance); six months, \$3.50; three months, \$2.00 to United States, Mexico, Cuba, Porto Rico, Hawaii and the Philippines. For Canada, add postage \$2 a year. For other foreign countries, add postage \$5.50 a year. Back numbers, if available and not over one month old, 20 cents each. From one month to six months old, 50 cents each; over six months old, \$1 each.

In ordering change of address, give old as well as new address.

MEMBER ASSOCIATED BUSINESS PAPERS, INC., AND AUDIT BUREAU OF CIRCULATIONS.

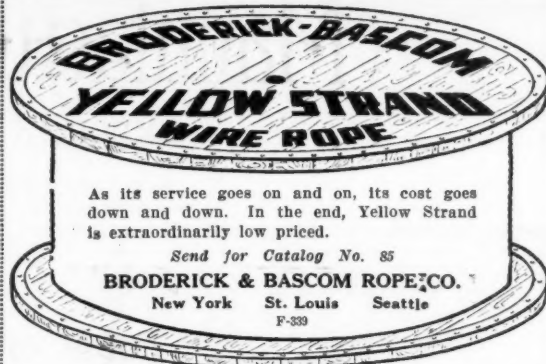
NORTHROP LOOMS

Trade-Mark, Reg. U. S. Pat. Off.

Make better goods and more
of them with less than half
the labor cost of weaving

DRAPER CORPORATION
HOPEDALE MASSACHUSETTS

Copyright 1917 by Draper Corporation



As its service goes on and on, its cost goes
down and down. In the end, Yellow Strand
is extraordinarily low priced.

Send for Catalog No. 85

BRODERICK & BASCOM ROPE CO.
New York St. Louis Seattle
F-339

Dow Wire Guards



Furnish 100% Protection
To Your
Property



The Dow Co. ~ Incorporated ~ **LOUISVILLE, KY.**

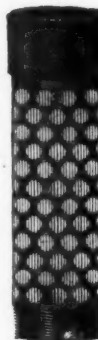
McEVOY WIRELESS WELL STRAINER

Customers for Water Well Strainers
from Atlantic to Pacific Comprise

CITY WATER WORKS
IRRIGATION WELLS
MANUFACTURING PLANTS
COTTON SEED OIL MILLS
LUMBER MILLS
OFFICE BLDG. WELLS
ICE PLANTS and many others.

Write for information

J. H. McEVOY & COMPANY
Houston, Texas



Patented.

(SONNEBORN PRODUCTS)

NO MORE LEAKY ROOFS

Stormtight the National Roof Protector keeps good
roofs watertight and makes old roofs leakproof for
many years.

Stormtight

does not crack like ordinary roof paints and cheap
roof cements. It furnishes a thick rubberlike coating
which does not crack or run under heat or cold.
Use Stormtight this fall—it will pay you.
Every drop spreads protection.

Write for booklet "Leakproof Roofs" and testimonials

L. SONNEBORN SONS, INC.
Dept. 23, 116 Fifth Avenue, New York

(SONNEBORN)

ECONOMICAL transportation of coal,
ore, rock, mine waste, etc., is being
accomplished with

Leschen Aerial Tramways

The actual operation of numerous install-
ations proves their efficiency.

Established 1857

A. LESCHEN & SONS ROPE CO.
ST. LOUIS, MO.

New York Chicago Denver San Francisco



Black Diamond Files
for preference

G. & H. BARNETT CO.
1078 FRANKFORD AVE.
PHILADELPHIA, PA., U.S.A.

Owned and Operated by
NICHOLSON FILE CO.
PROVIDENCE RHODE ISLAND

KINNEAR

ROLLING DOORS

The pioneer among rolling doors—
leader for 17 years! Perfect bal-
ance, easy operation, affords fire
and theft protection, simple to
repair—built-in as integral part
of building. Branch offices in
principal cities. Write for Cata-
log No. D-10.

THE KINNEAR MFG. CO.
823-873 Field Ave., Columbus, O.

New York Office: Washington Office:
1182 Broadway. 929 Southern Bldg.,
New York, N. Y. Washington, D. C.



177424

Manufacturers Record

EXPONENT OF AMERICA

Devoted to the Upbuilding of the Nation Through the Development
of the South and Southwest as the Nation's Greatest Material Asset

Trade-Name Registered in the U. S. Patent Office

Vol. LXXXII No. 14
WEEKLY.

BALTIMORE, OCTOBER 5, 1922

{ SINGLE COPIES, 20 CENTS
\$6.50 A YEAR

PUBLISHED EVERY THURSDAY BY THE
MANUFACTURERS RECORD PUBLISHING CO.

Office: Manufacturers Record Building, Cor. Commerce and Water Sts.
BALTIMORE, MARYLAND

RICHARD H. EDMONDS, President
FRANK GOULD, Vice-President

VICTOR H. POWER, Treasurer
I. S. FIELD, Secretary

RICHARD H. EDMONDS, Editor

BRANCH OFFICES:

CHICAGO, 11 So. La Salle St.
ST. LOUIS, 915 Olive St.

NEW YORK, 30 Church St.
BOSTON, 734 Old South Bldg.
WASHINGTON (Whaley-Eaton Service), 456-459 Munsey Bldg.

SUBSCRIPTION RATES:

\$6.50 a year (in advance); six months, \$3.50; three months, \$2 to United States, Mexico, Cuba, Porto Rico, Hawaii and the Philippines. For Canada add postage \$2 a year. For other foreign countries add postage \$5.50 a year. Back numbers, if available and not over one month old, 20 cents each. From one month to six months old, 50 cents each; over six months old, \$1 each. In ordering change of address, give old as well as new address.

In order to avoid delays all correspondence pertaining to news or advertising matters should be addressed directly to the Manufacturers Record, Baltimore, Md., and not to individual editors, officers, employees or any branch office.

THE CENTER OF AMERICA'S ANGLO-SAXON INDUSTRIAL POPULATION.

MR. CHARLES E. HELLIER of New York touches on a very interesting point in connection with the labor situation in a letter to the MANUFACTURERS RECORD in which he says:

"What effect, if any, is the restriction of immigration having on enlarging the demand on the southern mountaineer people for labor in the coal mining, iron and steel making and textile industries of the South?

"As foreign labor becomes in reduced supply, this pure Anglo-Saxon population should be utilized and their purchasing power and standard of living increased.

"On a recent visit to the Big Sandy (Ky.) coal fields, I was particularly impressed by the fact that in the school at Hellier there were 400 pupils, with seven teachers all but one of whom I believe trained at Berea College. I could see that the late President Frost's splendid work is bearing good fruit."

In the mountain region running from Virginia to northern Alabama is to be found the center of the most unmixed Anglo-Saxon population in the world. Out of these mountains has poured an unending stream of men and women into the industrial interests of the South, especially into the cotton mills. This region is one in which large families still predominate, and like swarming hives of busy bees this section has sent forth a stream of workers in whom there are all of the inherent qualities of Anglo-Saxon potentialities.

What Mr. Hellier found in the school of 400 pupils at the town of Hellier, could be duplicated in hundreds of other towns throughout these mountain regions. Various religious denominations have for years been carrying on superb educational work among these mountains, but there is room for a great increase in the number of schools and a vast increase in the amount of money available for the work to be done.

LET GOVERNMENT BEGIN REFUNDING WITH BILLION DOLLAR ISSUE OF TWO PER CENT BONDS HAVING CIRCULATION PRIVILEGE.

IT was said years ago that "the way to resume is to resume." So it can be said now that the way to refund is to refund.

There is a way in which some substantial refunding can be put through now, not only at a great saving to taxpayers but also to the very great benefit and advantage of business everywhere. It is possible to cut the interest charge on bonds in half and at the same time not to take out of circulation any considerable quantity of the currency.

Let the Government issue a billion or more of bonds, at 2%, these bonds to carry the circulation privilege. Such an issue, it is admitted by bankers, would be oversubscribed by national banks.

In order to prevent undue inflation during the war, all issues of bonds were made to carry a comparatively high rate of interest, but were denied the circulation privilege. They were, however, made subject to rediscount in the Federal Reserve banks, where they were rediscounted in huge volume, money being printed against them. The money so issued was subject, however, to immediate recall in case the fiscal authorities so decided, and they did decide to "drive Government securities out of the Reserve banks." The result was the general panic which began in 1920 and is not entirely finished yet.

During this period of war financing, the fiscal authorities frowned on the use of bonds carrying the circulation privilege by national banks as a basis for currency issues of their own. This policy was modified after the Harding Administration came into power and new blood got into the Federal Reserve Board. On May 31st last, over 92% of all Government bonds eligible as security for bank issues were on deposit with the Treasurer of the United States. Since then the demand for bonds carrying the circulation privilege has grown apace.

There is a great advantage to the business public in bank issues of this sort. It puts money permanently into circulation. It does away, practically, with the constant threat of such heavy withdrawals of currency as two years ago caused a currency famine, when the Federal Reserve Board was boasting of having called in something more than \$200,000,000 in two weeks. Moreover, it is a practice of financing that has been well tested through half a century of national life. It has, also, still another advantage. It was not in-

DEC 10 1923

tended, we take it, that Federal Reserve currency should become the primary and chief currency of the nation. It was visioned as an emergency currency, to be brought out as the necessities of business required, to be supplementary to the normal money supply, which was based to so large a degree on bank issues.

We do not see how any responsible Treasury officials can justify a payment of even $3\frac{1}{2}\%$ interest on a new issue of bonds until and unless there has first been floated not less than a billion of the two per cents, bearing the circulation privilege. The Harding Administration boasts that it is an economy Administration, seeking to reduce taxes. Every one per cent on a billion that is saved means a saving of ten millions in annual interest, enough gradually to amortise an issue.

It is our understanding that Washington is now giving serious consideration to a special funding issue, of the character described, in an amount not less than a billion. Presumably, there will be financial elements to cry out that this is inflation. Let them be ignored. It is not inflation, but financial statesmanship. It is a resort to a method to which are attached the credentials of previous success, over a term of years. It is financing of a higher class than that which became notorious after the Armistice.

If a billion in bonds bearing the circulation privilege is issued, and if the banks in turn, on the deposit of such bonds, issue national bank notes to the value of approximately a billion, the impetus to business will be unparalleled. In this way a part of the national debt can be transmuted from a liability into an asset, and be made to work as the servant of all the people in the financing of the vast enterprises which will be undertaken during this decade of national development.

"CHEAP COTTON."

RANDAL N. DURFEE, a New England spinner and a prominent member of the National Cotton Manufacturers' Association, has written an article for the New York Journal of Commerce almost every paragraph of which begins with the dictum "cotton should be cheap." It should be cheap, says Mr. Durfee, because it is a prime necessity, because it furnishes clothing for the poor man, because millions of workers are dependent on it for a livelihood, because "only in times of cheap cotton does the manufacturer secure a reasonable profit on the capital invested," etc., etc. We ought to strive to produce cotton as cheaply as possible, says Mr. Durfee, instead of curtailing production. He thinks that the cotton-producing sections are capable of producing large enough crops to make cotton cheap. As these arguments, however, appear by themselves to be a little too "raw," it should be stated that Mr. Durfee also contends that "by cheap cotton is not meant a price which does not show a profit to the producer. All interests handling cotton are entitled to a reasonable profit, but the producer is not entitled to charge 20 cents for cotton costing 10 cents any more than the manufacturer is entitled to charge \$1 for the finished cloth costing 50 cents."

Perhaps Mr. Durfee thinks cotton labor is inefficient and unprogressive. It is. Five-cent cotton had a way of closing schools, dressing labor in rags, housing it in hovels and prohibiting the construction of churches. It made the slavery of pre-Lincoln days appear in comparison as some sort of heaven. It degraded even the negro. It swelled the death

lists, apotheosized ignorance, pauperized whole sections. Before the Civil War there had been negro slavery in the South. After the Civil War, the cheap cotton advocates undertook a new enslavement of the whole South, white and black.

There is and can be no such thing as cotton production at ten cents the pound, under boll weevil conditions, and nobody knows it better than does Mr. Durfee. And nobody knows better than he does that if production of cotton at ten cents the pound were possible it would be possible only by sweating blood out of American citizens and giving them in return not even a proper food supply. Mr. Durfee knows that, or ought to know it. Nay, more; he knows that a price of twenty cents for cotton, now, is an infamous price—havoemaking. To defend it is equivalent to defending the march of an invading army through the South, spreading destruction at every turn.

The maintenance of American dominance in cotton production is desirable, highly desirable, provided profit also is maintained, but not otherwise. Philanthropy is carried to an extreme if the Southern farmer is to go on indefinitely producing cotton at a loss. None more than the farmer laments the necessity for acreage reduction, but Mr. Durfee knows, or ought to know, that the only way in which the boll weevil can be fought at all successfully is by intensive cultivation, and intensive cultivation requires concentration of available labor on smaller, not larger, acreage. Doubling the acreage might actually reduce the size of the total crop.

No cotton is cheap that degrades millions. No cotton is cheap that is paid for by the misery and ignorance of blacks and whites. No cotton is cheap that reduces whole populations to the condition of Indian serfs. But if Mr. Durfee and his associates, so intent on profits for themselves, would work for cotton prices that carried with them something like a living wage for the producers, out of the prosperity resulting the South unquestionably, we think, might through educational processes, etc., gradually achieve a greater efficiency, which would correspondingly reduce production costs. "Distress cotton," however, is not a national asset; it is a national liability.

It is true that foreigners are making stupendous efforts to establish cotton production in their own colonies. Maybe Mr. Durfee has noted that they are doing it by guaranteeing prices, which is the equivalent of guaranteeing profits. They are not worried so much about price as they are about supply. If more production is what Mr. Durfee wants, he may be able to get it by guaranteeing prices also. We do not doubt that hundreds of planters would be quite willing to contract to produce cotton for him at cost plus a reasonable profit. The trouble with many men of Mr. Durfee's type, however, is not that they want cotton at a fair price, but that they want cotton at an unfair price. They want it at less than cost. Indeed, a little less selfishness and a little more conscience would be good for more than one depresser of cotton prices. Moral responsibility! The boll weevil may be, as some negroes think, a visitation from the Almighty in protest against the conditions under which cotton has been produced.

The development of the co-operative selling plan in the South is so rapid that many look forward to the time when the price will be fixed as absolutely, year by year, as is the price of steel. Cotton then will be "cheap." It will be "cheap" in the sense that it will be sold for actual cost of production, plus a reasonable profit. But the kind of cheap cotton Mr. Durfee seems to vision will, we trust, never again be seen in the United States.

The shortest way to do many things is to do only one thing at a time.—Cecil.

They are never alone who are accompanied by noble thoughts.—Sir Philip Sidney.

WHICH WILL YOU CHOOSE, LAWLESSNESS WHICH ENDANGERS LIFE, PROPERTY AND GOVERNMENT ITSELF; OR, OBEDIENCE TO LAW AND ORDER—HEAVEN OR HELL?

AT a leading summer resort this summer, the president of one of our great and most conservative insurance companies became so dead drunk that he had to be carried bodily out of the room, so we have been informed by a Baltimore business man of the highest standing.

At a quiet and somewhat semi-religious resort in the mountains of Pennsylvania, where the hotel has a number of cottages, three supposedly prominent business men of a neighboring city with their wives and a young boy about twelve or thirteen, rented a cottage for three days. Their automobiles were loaded with liquors and for three nights until one or two o'clock in the morning they carried on a wild carousal of loud talking, yelling, shrieking and drinking. Tenants of a nearby cottage found it difficult, and in some cases, impossible to sleep until after this drunken orgy ended at two o'clock, even on Sunday morning.

A dispatch to the Baltimore Sun from Bristol, Virginia, says that a bootlegger recently appeared in that city and made contracts with fifteen or twenty of "Bristol's leading business men" for the delivery of liquors, receiving their checks to the extent of about two thousand dollars before the delivery of the stuff sold. These checks, according to the dispatch, were collected that afternoon by the bootlegger, knowing that the men who had bought his stuff would not openly admit that fact, and would make no attempt to prevent his cashing of the checks prior to the delivery of the whiskey. The dispatch says:

"The confidence man started his activities in the morning by visiting a local banker, introducing himself as a high class bootlegger who served an exclusive trade. The banker hastened to introduce him to several of his friends and they in turn passed the good news along to others. Among those who hurried to cash their checks were several of the wealthiest men in Bristol."

Here are three specific items which show the almost hopeless degradation of those who are willing to violate the nation's laws. The men guilty of these criminalities are to the utmost extent of their power and influence, responsible for every murder committed by bootleggers and for the criminality which exists throughout the land on the part of those who would break down our laws and destroy our government. If it be true that a Bristol banker was guilty of buying whiskey from a bootlegger and of introducing the bootlegger to other Bristol men, he was guilty of a criminal act which ought in some way to land him in the penitentiary, for it is an act which violates the nation's constitution, puts a premium upon crime, and any man guilty of doing these things has no right to expect morality in his own family, and no right to expect that the laws of the land shall protect his life or his property, or safeguard his family from ruin.

Every man who violates law in this way is encouraging the violation of all laws.

The banker who buys the bootleg whiskey has no right to complain when the bootlegger or the murderer shoots him or the clerk in his bank.

The rich man who violates law in this way has no right to expect that the nation will safeguard his property or his life from robbers and murderers.

All are alike criminals, legally and morally, and should be classed as criminals by every right thinking man and woman.

Regardless of what a man may think of a Prohibition law or of any other law, so long as it is on the statute books of the nation and is a part of the nation's constitution he is in duty bound, if he is a man of honor and morality,

to obey that law, or else he contributes to the breaking down of all law and to the destruction of our government.

Two suggestions have lately been made to a representative of the MANUFACTURERS RECORD by Norfolk men on the views of this paper as to prohibition. One man was opposed to its stand on prohibition. He said that he had heard it reported that the MANUFACTURERS RECORD had lost many of its subscribers on account of its fight for prohibition. Another man said that the MANUFACTURERS RECORD contained "too much politics, religion and prohibition."

Religion is the foundation of a nation's business progress, prosperity and liberty. If the religious life of Norfolk was blotted out, if its churches were out of existence, every business interest in that city would be destroyed and the city would soon become as dead as Sodom and Gomorrah. Religion, if viewed only from its influence upon morality and honor and law and business, is of supreme importance to the welfare of the nation. Even the Wall Street Journal finds it wise to publish occasionally a Wall Street sermon written sometimes by one of its editors, sometimes by an outside man, presenting in vigorous, aggressive and truthful language the influence or religion upon the nation.

Viewed from the economic or moral standpoint the liquor traffic is one of the world's greatest curses. Lord Leverhulme, regarded by many as perhaps the foremost business man of Europe, recently wrote the MANUFACTURERS RECORD in hearty commendation of prohibition and stated that if Great Britain would adopt prohibition the saving thus effected in five years would be enough to pay England's indebtedness to America. Thousands of the foremost manufacturers of the United States, men with whom the MANUFACTURERS RECORD is constantly dealing, regard prohibition as of supreme importance to the economic and moral welfare of the nation, and yet some narrow visioned men think that the MANUFACTURERS RECORD must not advocate prohibition.

Our Norfolk critic also says we have too much politics. This raises the question as to what are politics. If the MANUFACTURERS RECORD is not to discuss politics then it cannot discuss a tariff either from the protection or the free trade view point, because the tariff is in politics. If it cannot discuss politics it cannot discuss strikes, because they are intermingled with politics. It cannot discuss finance, upon which the prosperity of the country rests, because the financial interests are intermingled to an alarming extent with politics. On the same basis it cannot discuss the railroad situation because the railroads and politics are badly mixed up. And, therefore, if we are to follow the suggestion of our Norfolk critic, who thinks that we must not discuss politics, or religion, or prohibition, there would be but little of interest in the MANUFACTURERS RECORD worthy of any man's attention.

The Norfolk man who heard that we had lost many subscribers on account of prohibition is very much mistaken. Here and there we have lost one. For instance, one of the leading bankers of Baltimore, long an enthusiastic advocate of this paper and for years an advertiser in it for his bank, discontinued his subscription and the advertisement of his bank because it criticised him and other Baltimore men for saying that this nation was "becoming a nation of liars, thieves and hypocrites," and that because prohibition laws could not be enforced they must be repealed. We are perfectly willing to lose such men from our subscription list, but those who imagine that this in the slightest changes the position of the MANUFACTURERS RECORD on this great question have little understanding of the policy which has prevailed in this office for the last forty years. Moreover for every one who has criticized our position on prohibition dozens have written in enthusiastic commendation of it.

The MANUFACTURERS RECORD intends to advocate those things which it believes will be for the moral and material upbuilding of the country. It intends to denounce with equal vigor the things which it believes will destroy the moral, spiritual and material interests of the nation, and we rejoice to know that from every part of this country, from thousands of business men and educators, manufacturers, bankers, and others, we receive the most unstinted praise and commendation of our policy as against the occasional criticism of some man of criminal instinct who breaks the laws of the land as a bootlegger, or the buyer of bootleg whiskey, or some unthinking man who fails to grasp the realities of the problems of the hour. Never in its history was the MANUFACTURERS RECORD so widely commended as it is today. Never was it so widely read as it is at present and never had it so strong a hold on the business interests of America as at the present time.

Lying on the desk while dictating this are many letters from subscribers, and similar letters are coming in every mail. One letter is from Mr. T. C. Hannah, attorney of Hattiesburg, Miss., who writes as follows:

"It affords me a great deal of pleasure to return properly signed my renewal subscription to the MANUFACTURERS RECORD.

"I have been a constant reader of your paper for some years; and am frank to tell you that no other periodical or journal that comes to my desk is quite so interesting and enlightening as your paper.

"Particularly do I want to say AMEN to the many good things that you have written during the past few weeks.

"You have certainly hit the keynote when you say, if the laws had been enforced we would have no strikes. The enforcement of the law is the salvation of our country. The great trouble is, that as soon as we have a strike, or something else happens, the politicians joined by the general public, begin clamoring for the enactment of additional laws. As a matter of fact, in most instances we do not need additional laws, but the enforcement of the laws we already have.

"Take the present railroad strike as an example: If the right of men to work when and where they please had been fully protected from the outset, and they had known that this right would be protected, there would have never been any difficulty about the railroads operating their trains; and there would have been no need of talking of amending the Transportation Act so as give to the Labor Board additional power.

"I repeat that what this country needs is law enforcement and the avenue to this accomplishment is through the education of the people; and the people must be educated through the public press. Therefore, we need more red-blooded Americans like the editor of the MANUFACTURERS RECORD to direct the policy of the newspapers and periodicals."

Another is from Charles R. Gow, President of the Associated Industries of Massachusetts, in which he says:

"I wish to congratulate you upon the publication of the splendid editorial on the cover page.

"You have expressed in unmistakable clearness a thought which has been in the back of my mind for many months and which I also have been endeavoring to put into words for use in our publication 'Industry.'"

"You have said the thing so much better than I could have expressed it that I have lost my enthusiasm for completing that which I have begun, but I sincerely wish that it might be possible for your article to be read and pondered by every business man in this country. There is nothing in my judgment which could do more today to combat successfully the alarmingly increasing trend of radicalism than the firm and continual insistence by all straight, thinking, educated men, that business dishonesty and disrespect for law must not be tolerated in whatever form it exists."

Mr. James M. Barr, former president of the Seaboard Air Line, in which position he did a wonderful work for the development of the South, now living at Keswick, Va., where he is carrying on large farming operations on reclaimed land, under date of September 23 wrote the MANUFACTURERS RECORD as follows:

"You have performed and are performing a great public service in the conduct of the MANUFACTURERS RECORD. Its influence for the public good is greater, in my opinion, than

that of any other journal or paper published in this country. My regret is, it does not reach Lincoln's common people.

"I have been a subscriber to your paper for many years and hope to be so long as I live.

"You are wholly right in your view of the strike. A strike against public welfare is little less than an act of treason and should be so treated.

"The future of our country is dependent upon the full enforcement of its laws; the full protection of a man in his right to work; and the maintenance of free individual initiative, limited only by the rights of others—such initiative has made this country what it is.

"The present social unrest in this country is, in my opinion, largely due to inefficient Government, and consequent excessive taxes; and an erroneous belief by Labor that all wealth is the product of manual labor alone—not the product of labor directed by brains—and that it, Labor, does not get its fair share thereof; while the truth is the contribution of brains to wealth is greater than that of brawn. This fact must be made clear to Labor for its good and the public's good. The rule of the proletariat has impoverished all those thereunder."

We rather think we can put the letter of this far-seeing man alongside of the views of our Norfolk critic.

Mr. Harry M. Hart, the Memphis representative of the American Wood Working Machinery Company, says:

"The writer had an opportunity of recommending the MANUFACTURERS RECORD to our Mr. Maston and I think that he feels as I do, that it is a very valuable advertising medium.

"Aside from that feature, I feel that the editorial stand of the paper is so thoroughly good that it should have the support of all the business interests of this country, and I was pleased to express that as forcibly as I could to our people at Rochester."

The Eitzen-Touart Company, timber and lumber exporters, of Pensacola, Fla., writes:

"We admire and appreciate your courage and forceful arguments on important questions."

Mr. H. D. Shutt, of the Kuykendall Realty & Insurance Co., Winston-Salem, N. C., says:

"I am renewing my subscription for the MANUFACTURERS RECORD, also I am sending you in addition \$3.00 for ten Blue Books, if this is not right, we will make it right. Hoping that you will keep up your good work for many years to come, as you make so few mistakes and go after those who need it with gloves off and hit the bull's eye every shot."

And President Anderson of the American Motor Company, of Rock Hill, S. C., closes a letter on business matters with the following statement:

"The MANUFACTURERS RECORD is a great magazine. Yours is one of the few papers that will actually write what they think."

From Charles F. DeBardleben, Vice President and General Manager of the Alabama Fuel & Iron Company, comes a letter in which he says:

"I admire the stand that your paper has taken with reference to the various problems confronting this country during and since the war and I hope that you will keep up the good work of fighting for the principles of Americanism by standing firm for the open shop policy. According to my belief this country is in a most critical state and if the present two strikes demonstrate that labor is stronger than the government then we are not far from the basis of Russia. Unless life and property are to be protected by this government and a man accorded the privilege of working when he wants to work we certainly haven't the right kind of government and I think the time has come for a sure enough show down between the government and labor on the two questions now at issue."

Mr. H. A. Long, Commissioner of the National Clay Products Industries Association, Chicago, writes:

"We commend the MANUFACTURERS RECORD for the wonderful work it is doing and expect to continue as an interested reader."

Mr. J. Floyd Collins, formerly superintendent of Public Schools of Ozark, Ark., now of Jackson, Tenn., writes:

"Permit me to sound a note of sincere praise and admiration for the magnificent work the MANUFACTURERS RECORD is doing economically, morally and religiously. I think it is doing more than all other agencies, perhaps, for the material development of the South. And what a power for pure

Americanism and for righteousness it is! Time has verified the wisdom of every contention you have made. With sincere regard and the wish and prayer that your invaluable life may be spared for many years."

Mr. Phineas V. Stephens, consulting engineer of New York, writes:

"I wish to congratulate you upon the excellent influence you are exerting for the enforcement of the 18th Amendment and our Prohibition Laws in America. We must save our country from any backward step. There must come, as never before, a union of the forces of the church, industry, capital, labor, and publications such as the MANUFACTURERS RECORD in educating the public to the importance of earnest respect for our laws and the real value of the abolishing of alcohol as a beverage in America."

These are but typical letters which come from men of all classes, the great leaders in industry in America, the manufacturers of every section, educators, lawyers and others.

There are some men who will not take a broad view of great world issues. They think that a business publication must confine itself strictly to routine information about some particular line of industry. They overlook the fact that the best business men of America are intelligent thinking men as a whole who want to study the great problems of this and other countries, and to know what influences are at work for the upbuilding or the tearing down of nations. On the other hand there are men who might be aptly described in Mrs. Browning's words in which she said:—

"Earth's crammed with Heaven,

And every common bush afire with God;

But only he who sees, takes off his shoes,

The rest sit 'round it and pluck blackberries."

If the men who are criticising the MANUFACTURERS RECORD for its advocacy of prohibition and of the moral and religious upbuilding of the nation, insist upon "plucking blackberries," we shall have to leave them to that lowly employment. There are millions of others who see that unless men do their duty in law observance and righteousness, earth will be "crammed with hell" instead of with Heaven. Which do you prefer we shall fight for, Heaven or Hell?

BRANCH BANKING AN EVIL THAT CONGRESS SHOULD DESTROY.

THE Federal Reserve Board is more or less seriously alarmed over the tendency of important national banks to surrender their national charters and operate under State laws. This is particularly true in such States as California, Michigan and Ohio, where State institutions, operating branches, are rapidly monopolizing all of the business in sight. It is stated authoritatively that there is likelihood of the great city of Detroit, in the near future, not having a single national bank within its borders.

There are probably many other reasons why national banks are trying to escape too rigid control by Washington, but branch banking is given as the chief one. Also, the privileges peculiar to national banks are not so outstanding as they once were. State institutions can secure whatever benefits may arise from membership in the Federal Reserve System. Also, the privilege of national banks to issue their own bank notes, after depositing with the Treasurer of the United States bonds bearing the circulation right, has been all but destroyed through the meager supply of such bonds. The limit is about three-quarters of a billion, which was a large sum of money in other days, but is a comparatively small contribution in these times to the currency supply.

We have never seen and do not believe there ever has been offered a valid argument in favor of branch banking. It is conceivable that a great city bank might outgrow its quarters, and former Comptroller of the Currency Williams recommended to Congress several times that branch banking, in such cases, under the most rigid control, be permitted. But he was utterly opposed to that sort of branch banking which sends clerks from city institutions into country towns as

managers of local branches and destroys the small local banks. The only plea for permitting branch banking by national banks that we have ever seen seriously offered is that in some states local institutions have the privilege and national banks there situated must have it, too, in order successfully to compete.

We do not believe that there is any banker in America more hostile to the principle of branch banking than is the present Comptroller Crissinger, who comes from a state where branch banking is established on a large scale. Nevertheless, the Comptroller is popularly credited with having done more to promote branch banking by national banks than any other man.

The Comptroller, we understand, while thoroughly hostile to branch banking, does not believe that there is any possibility of disestablishing it in states where it has gained a foothold. Likewise, he feels that it would be as fatal to have the full control of credit in the United States in a state banking system, of 48 units, as to have such control entirely in a national system. He thinks, we are told, that the nation needs the one as an offset to the other, intelligent competition preventing abuses and forbidding monopoly. On the contrary, he is not preventing branch banking by national banks in states where state banks have that privilege. It must be said, too, that he is without authority to prevent branch banking through the process of absorption. It has long been conceded that a national bank can purchase a state bank with many branches, transfer the same into a national bank and then do business through all of the established offices.

We think the Comptroller errs in his solution of the dilemma. We do not think that the way to fight this devil is with fire, but with water. If state-wide, or even all-state wide, branch banking is permitted by the laws of special states, the way to overcome that bad situation is not to extend the evil also to national banks, but to build up a public sentiment that will scotch the evil altogether. It is said that this cannot be done. We are not so sure of it. We believe that the evils of branch banking can be so forcefully presented to the public that even such states as California might repeal their approval of branch banking. Centralization of credit control is something every free citizen ought to dread, and will dread if he knows the facts.

In Missouri, where the state does not permit branch banking, a national bank, on the advice of its lawyers, is opening branch offices, anyhow, declaring that the Comptroller of the Currency has no authority in the matter, and has appealed to the courts to sustain that view. The people of the country cannot afford to accept that situation. No matter what the law is now—it has long been accepted as forbidding experiments of the St. Louis type—the people do not want branch banking and will not have it. If this camel is able to squeeze through the eye of a needle, Congress can build another needle that no camel can get through. That is what it ought to do. Moreover, it should specify what national policy is in regard to branch banking, and, possibly, deny membership in the Federal Reserve System to institutions which practice branch banking on a large scale, even though permitted to do so by state laws.

We make no mistake when we say that small local institutions have done more to build the United States of today than is generally believed. It is a system that sort of grew up out of freedom, as Topsy "jest grewed." It is thoroughly American and peculiarly devised to meet the conditions that exist in America. The small local banks are a community's badge of freedom, the guarantors of their financial, and therefore, political, independence. Once let the system be destroyed, once let the local banking pass into the hands of giant metropolitan banks, managed for profit only and unattuned to the requirements and sympathies of local clients, and the cleft between city and country dwellers will become

more marked than it now is—and it is already serious in some states.

Branch banking is but another characteristic of that thought advanced by gentlemen recently in control of the Federal Reserve System; namely, that Congress wanted to establish another central United States Bank, but did not dare for political reasons, wherefore the administrators of the act, on their own initiative, would "centralize" banking, in spite of Congress, and establish an autocracy of credit even while the people were wondering where the smell came from. These elements do not want independent bankers in the United States. They want about a score of financiers who will have in their own hands the control of all credit.

That is just the one thing the American people will never permit, and Congress at its next session should say so most emphatically.

A MASTERPIECE OF PRINTING.

AS a work of art and technical skill in printing, The Book of New York, privately presented to the guests of the American Bankers Association at its forty-eighth annual convention in New York City this week, is a masterpiece. The foreword of the book states that New York "is the greatest urban proof of the growth and greatness of the United States, and those of the city know it to be founded on faith and integrity, and that despite its size, its heart is very human and responsive."

The book is handsomely illustrated and superbly presents a pictorial historical review of New York from its earliest settlement to the modern wonder it is today. The color work on the old prints and the more recent paintings and photographs of New York scenes shows to what heights the printing industry has attained in these times. The book is a credit to New York, noted for the big things it accomplishes, and to the Committee of One Hundred responsible for its preparation. However superb the book, and New York City, the South gets its share of glory, for with all the wealth and skill to be found in the world's greatest city, the book is a product of the Norman T. A. Munder Press of Baltimore. New York printers must feel some chagrin that the New York bankers had to come to Baltimore for this artistic piece of printing.

EASTERN RAILROADS NEED TO WAKE UP.

THE Wall Street Journal criticizes the management of Eastern railroads as compared with that of Western lines, and much of this is unquestionably deserved. In the course of an editorial entitled "Competition in Service" the Wall Street Journal goes for some Eastern roads in the following vigorous language:

"In the slow return of the railroads to efficiency after a destructive war experience where McAdoo management leveled all service to an insipid mediocrity, the railroads have not reached a point where they are really competing in service. At the risk of hurting the feelings of Eastern roads, it is still a merciful relief to the traveler to transfer at Chicago to the St. Paul or some other road really competing in service, with its decently clean cars, its savory cooking, its well-appointed observation car and its general humanity to the passenger.

"It is a ray of sunshine in the drabness of life to get a well-cooked prairie chicken on the Union Pacific. Perhaps Harvey's meals on the Atchison are not what they were twenty years ago, but they can almost obliterate the memory of the boarding house hash and prunes (at Ritz prices) of the Pennsylvania and the New York Central. They are an improvement on the McAdoo "standard" railroad meal, with its stale cold-storage fowl, its soggy vegetables, its wilted salad, and its soapy ice cream topped off with bad bread and the worst coffee on this side of the Atlantic.

"Time was when the New York Central and the Pennsylvania competed in speed and service for the passenger traffic between New York and Chicago. But government ownership took the heart out of them. Like all socialism it leveled everybody down, to give mediocrity an excuse. It shared

one railroad's hard-earned terminal facilities with a competing road. It removed all inducement to run better and faster trains. There is a limit to railroad speed, but we reached it years ago, so far as steam railroading is concerned, and are going back. We have not a single train which makes a two-hundred-mile trip at fifty miles an hour net, while that hopeless back number, Great Britain, has scores.

"What has become of the old railroad management that ran its own diners and its own sleepers? Do these railroad officials really take pride in letting George (Pullman) do it? Is it not about time that we had vigorous competition in service, where railroads get passengers and stimulate the development of outlying districts by making railroad travel attractive? The western roads can do it, and are coming back faster than any road east of the Mississippi."

There is great need of just such criticism as is here given, for some of the dining service and some of the facilities provided by the roads in the East as compared with far Western roads bespeak the need of greater business ability in many Eastern roads and greater attention to the comfort of passengers.

PAYING THE PIPER.

ONCE more the public is the "goat" of a great strike. The people are now having to dig into their jeans and pay the piper for practically everything they consume. The coal strike and the railroad strike were in basic industries and, therefore, all manufacturing and all goods sold have their cost price influenced by the disorganization and higher prices resulting from the strikes.

The Middletown, (Ohio) Journal editorially hit the bull's-eye when it stated recently that:

"People seem to forget that the entire cost of transportation and of fuel goes right back to the individual in the cost of everything he has to buy and that it is the people of the United States who must pay their wages and not the railroads and coal operators.

"Business, large and small, suffered the greatest shock it ever encountered in the drastic readjustment and liquidation of last year. Business had to pay and did pay in excessive taxes and in drastic liquidation its share of the cost of the war. In many instances, what was supposed to be large profits not only faded away entirely but carried all the assets of various enterprises away with it.

"All legitimate business that was strong enough to stand the gaff weathered the storm and made, with the help of its loyal workers, a renewed and determined effort to get things going again."

The strike weapon is a two-edged sword, and as experience has proved, with its blood-brother war, one of the most uneconomic forms of coercion ever devised by man's evil genius. A strike works like liquor in its deceptiveness. For a time it invigorates, raises false hopes, but all the while the strike demon is grinning, for he knows its insidious power which takes toll in disorganization of industry and increased cost of living to the striker himself.

How long, oh, how long, must the people suffer from the false leadership of the agitator? There must be some way to settle differences between employers and employees besides war. There are enough honest, intelligent men left in the world to peacefully, co-operatively and justly settle every industrial difference if the public will muzzle the "fuss pickers." In the bookkeeping record of every industry are facts and figures in black and white which show whether an industry is making healthy progress. There are fat and lean years. The employee on a stated wage is not affected by the small fluctuations of trade, but when an extended period of dull business comes along something must be done to save an enterprise for further usefulness. Workers who would share in the profits of a concern would balk at the thought of standing their share of losses, and the public, as always, pays the bill.

WHEREIN THE GREATNESS OF NORTH CAROLINA CONSISTS.

IN a recent stimulating address before the Press Association of North Carolina, Col. T. L. Kirkpatrick emphasized the fact that the huge sums which the state is spending for the development of its educational facilities and for its great highway program, mark a new era of industrial growth and intellectual development in North Carolina. On the good roads subject, he said:

"The Commonwealth has undertaken an ambitious road program that will compare favorably with any of her sister states in the Union. The legislature of 1921 in response to an intelligent public sentiment authorized the issuance of \$50,000,000 of bonds without a referendum for the purpose of constructing 5500 miles of modern highways.

"In addition to the \$50,000,000 voted by the state, our counties have authorized more than \$25,000,000, and these sums together with the amount received from Federal Aid gives to our State Highway Commission approximately \$100,000,000 to be expended in the building of a state system of hard surfaced and modern highways, inter-connecting the 100 county-seats of the Commonwealth."

North Carolina is fast obliterating the pall of illiteracy which has hung over the heads of its youth, said Col. Kirkpatrick, the past four years having shown a reduction in illiteracy and ignorance of from eighteen and five-tenths per cent to thirteen and two-tenths per cent. In another decade, he declared, no boy or girl in North Carolina would be able to say that he or she could not both read and write. Further he said:

"The South today is spending \$100,000,000 upon school building. North Carolina stands first in the list of states considering the value of school building work. The legislature of 1921 realizing its responsibility to the boys and girls of the Commonwealth, voted \$925,000 for the University maintenance; \$210,000 for Eastern Carolina's teachers' Training School, \$260,000 for the State Blind and Deaf School; \$550,000 for the A. & E. College; North Carolina College for Women \$600,000; Colored A. & F. College \$60,000; Deaf & Dumb School at Morganton \$220,000; appropriations to miscellaneous schools and educational institutions \$37,300; state public schools \$2,110,000. In addition to the above annual appropriations for general expenses, North Carolina has voted bonds in the sum of approximately \$11,998,453, for the building of educational and charitable institutions, thus making a grand total of moneys appropriated and bonds issued for educational purposes in the sum of \$19,970,753.

All of this, however, should be but a stimulus to greater effort for the future. The resources of North Carolina should be advertised before the world.

"The Bureau of Agriculture advises that eastern North Carolina enjoys the distinction of having the finest lands, commercially speaking, in the United States. You may draw a line through Hamlet to the north as far as the Virginia line and to the south as far as the South Carolina line, and that section of the state can be made to produce, agriculturally, and from a trucking standpoint, almost anything that the state of California raises. The Piedmont section is now becoming the greatest textile and industrial center of the world; western North Carolina enjoys a climatic condition and scenic beauty unparalleled by any section of the nation. If we would but forget our conservatism and advertise our natural advantages and resources as California has done, we can easily rank first commercially and industrially in the States of the Union.

"North Carolinians owe it to themselves to produce their own needed supplies, and further we should manufacture all of our raw material and natural resources, to the end that we may receive the profits and dividends on the finished product instead of the raw product. Today we are shipping \$200,000,000 annually of food stuffs and other supplies from without our border, which could easily be produced at home, thereby adding an enormous surplus to our coffers. The Port of Wilmington should be dredged and enlarged to the point where ships of all sizes could easily enter and depart to the end that our agricultural and manufactured products of the state could be shipped to all the markets of the world, bringing to us in return wealth and prosperity."

With a full appreciation of the blessings bestowed upon the state by a bountiful nature, Col. Kirkpatrick points out

that the question for him and his co-workers is whether "we have the vision, the spiritual and moral courage, intellectual power and dynamic energy to realize on these God-given inheritances.

"It is not so much the wealth and mineral development that constitutes the greatness of the state as it is the brain and heart of those who make the wealth and build the state. It is not so much what we have, but what we are that will give to our history its enduring luster and impress our greatness on the coming generation. Riches will perish and even our cities will crumble into ruin, but our patriotism and love of truth and noble deeds for our State and nation and humanity will survive the wreck of time."

BUILDING ACTIVITY IN RURAL DISTRICTS.

AN interesting feature of the building activity now so pronounced in the Southern states is the very large number of new dwellings and outbuildings which are going up on the farms and in the smaller communities. One reason that these new structures attract special attention is the contrast they afford to the nondescript type of structure which has been all too common in rural communities throughout the country in the past.

In the suburbs of the larger cities it is always possible to find signs in abundance of construction activity, except during periods of extreme depression or under stress of war, and such activity is the less noteworthy because it is not unusual. But a new farm building, whether it be a barn, or other outbuilding, or a modern dwelling, is certain to receive favorable notice even out of proportion to its cost; it stands somewhat alone and for that reason and on account of what it typifies in the way of prosperity to the farmer it appears to possess a significance above the ordinary.

There is no known method of computing the vast sums of money which are being expended today on the splendid improvements made by rural communities. The individual expenditure is quite often insignificant, but the aggregate is large indeed. And it is important as an index of the better living conditions which are gradually coming to the farmer and which must continue to improve in even greater measure in order that the agricultural wealth and prosperity of the country may rest on a sound basis.

The Jacksonville Times Union, in discussing recently some of these rural improvements which are noticeable in Florida, said:

"On the farms are to be seen evidences of more modern construction of dwellings, of barns and other necessary outbuildings. Happy-go-lucky methods of construction are out of style. Farmers and their families want, and get, the best, that is in building construction and equipment, as is right and proper. The waste that is in flimsy structures has been proved on the farm no less than in the cities and towns. Therefore, modern farming has regard for up-to-date farm buildings, as well as for labor-saving machinery, for motor transportation, for adequate school facilities, for all the improvements that are practical in successful agriculture.

"Modern buildings in the rural sections of Florida bespeak both progress and prosperity on the part of the tillers of the soil. As slovenly methods of doing farm work have passed into the discard, so have dilapidated, unsightly buildings which never indicated either ambition or prosperity in their owners. In the place of such structures there are coming buildings that indicate a spirit of pride as well as of energy that brings and maintains prosperity.

"Such building construction as is general today in rural communities speaks for better farm homes, for better citizenship of the dwellers in rural communities of the state, speaks for established agricultural prosperity in Florida, for a better state in every manner and way."

There may be more of this class of construction going on in Florida than in some other states, but the move toward better farm buildings is typical of what is taking place in all parts of the South.

The problem of the world is how to make nations act like gentlemen, and so be, safe.—Edwin W. Mead.

DR. CHARLES W. DABNEY, A SOUTHERN SCIENTIFIC LEADER, LOCATES IN TEXAS.

IN 1892 President Cleveland called to the position of assistant secretary of the United States Department of Agriculture, Dr. Charles W. Dabney, the president of the University of Tennessee. While holding the position as assistant secretary, Dr. Dabney probably accomplished more for the scientific development of the work of the Department of Agriculture than any man who had ever held any position in that department, and the country is today largely indebted to him for the scientific work which he inaugurated during the time of his incumbency. Dr. Dabney was probably the most highly scientifically educated man who up to that time had ever held a position in the Department of Agriculture, and possibly his equal in that line has not since been found in the department.

Retiring from the Department of Agriculture upon the election of President McKinley, he returned to the University of Tennessee, holding his position there until he became president of the University of Cincinnati in 1904, in which he did a work commensurate with what he had done elsewhere. In his earlier scientific work he investigated the coal fields of southern West Virginia and southwestern Virginia and had discovered their value long in advance of the development which came about later.

Having resigned as president of the University of Cincinnati, Dr. Dabney has located in Houston, Tex., and with a number of associates will devote his time to the investigation of the vast resources of that state of almost limitless possibilities. He has associated with himself a number of geologists, chemists and engineers, covering a wide field of expert knowledge. As a recognized authority on potash, Dr. Dabney has assisted the State Geological Survey in gathering information on the recently discovered potash beds of the Panhandle of Texas and eastern New Mexico. He has also been active in urging upon the present Congress the necessity of protecting the American potash industry from foreign "dumping" until this nation may make itself independent of foreign sources of potash for agriculture, dye stuffs and explosives.

For his attainments in chemistry, economic geology and education, Dr. Dabney was made by the French an Officer de l'Instruction Publique. Later, for his war services, he was made a Chevalier de la Legion d'Honneur. In selecting Houston as a central point for his scientific work for the investigation of that great state, adjoining states and Mexico, Dr. Dabney has located at a point from which can easily be reached one of the richest, most marvelously endowed regions on earth.

EXPORT AND IMPORT VALUES FOR 8 MONTHS COMPARED WITH 1921 AND 1913.

A PRELIMINARY report issued by the Department of Commerce shows that the aggregate value of exports for the eight months ending August was \$2,424,045,754, while our imports during this period amounted to \$1,942,543,249. Compared with the corresponding months of last year, the total value of exports this year is less by \$802,501,072, or nearly 25 per cent. The value of imports during this eight months has increased by \$249,139,014, or over 14 per cent.

The Department calls attention to the fact that the lower values of exports and imports since January, 1921, as compared with previous years do not represent corresponding declines in volume of foreign trade, but are to a great extent due to the fall in prices. For the purpose of comparison with pre-war trade the figures for 1913 are given showing that the total value of exports and imports for the eight months was larger than the value of exports and imports for the first eight months of 1913. In 1913 the aggregate

value of exports from January 1, to September 1, was \$1,515,182,157 and import values were \$1,156,300,228. Thus it will be seen that while so far this year the aggregate value of exports is but three-quarters of last year's figures; compared with 1913 this year's export values show a gain of 59 per cent, and imports 68 per cent.

Rebuke to the Wets Seen in Tremendous Republican Vote in New Jersey.

Washington, Oct. 1—[Special.]—The unexpectedly dramatic triumph of Senator Frelinghuysen in the New Jersey Republican primaries has changed the whole political concept of affairs in Washington. The press calls it a triumph for conservatism, for the "Old Guard," or a vindication of tariff policy, or an endorsement of the Harding Administration. But none of these is the reason the political experts are reporting to the White House or to the party committees.

They say that the women and church people have met the challenge of the "light wine and beer" interests, and ignoring every other issue, have gone to the people to vindicate their belief in Prohibition. The great masses of law-abiding people are not voting on the bonus, or on Newberryism, or on the tariff, or on conservatism, or on foreign affairs, or on any other issue except one: "The country must be kept dry." Very quietly the women have organized, it is true, and the voice of the church people has not been very loud, but they have flocked to the polls and let their ballots do the talking.

A peculiar political situation exists as a result. It so happens that New York, where the fight against Prohibition centers, is also the center of the publishing industry, the theatrical industry and the moving-picture industry. Accordingly, it became customary for New York publications to be filled with jeers and jibes at Prohibition, the stage following suit, and the moving pictures went the limit in deriding "dry laws. Some politicians made the mistake of thinking this was the voice of the people. They did not recollect that while "Main Street" might not own and publish a national magazine, it did cast a majority of votes polled in America. They jumped to the conclusion that the tail was wagging the dog; they believed that New York, with its overwhelmingly foreign population, was speaking for the whole United States.

So politicians who care for votes more than for principles began to go out on a limb. The democrats tied themselves irrevocably to the "light wine and beer" propaganda in New Jersey, in New York, in Ohio and almost everywhere else where they thought that issue would pull them through. These same politicians had been told in 1920 that Anti-Prohibition sentiment would give the East to Cox and put him in the White House. It is a wet and dry fight, they said. If it was it ought to have been a lesson enough to keep them from playing with fire this year. But it did not, and the result is that the Democratic party, which is overwhelmingly dry all over the South, finds itself tied up with the wet elements in almost every doubtful State. And the leaders have been in a more or less panic-stricken condition. They fear that New Jersey shows them they bet on the wrong horse.

Meantime, the Harding Administration is smiling. It does not think it will lose any Senators. It will not even have to defend their record on any of the things that were assumed to be paramount issues. All it has to do is to stand pat for Prohibition and it cannot lose. That is why experts are expecting the Administration shortly to change its views on the sale of liquor on American ships and strengthen rather than modify its program of law enforcement. In a few of the big cities the wet forces still cast a majority of the vote, but about the surest way for a candidate in almost any part of the country to get elected is to be able to show that his opponent is in sympathy with the Anti-Prohibitionists. It looks like a bad year for the wets.

Southern Improvement Bonds Sold Total \$243,000,000 for Nine Months.

The value of 1180 issues of bonds sold in the sixteen Southern states in the first nine months of 1922, as reported weekly in the financial news columns of the MANUFACTURERS RECORD amounted to \$243,129,010.

In September, 108 issues with a par value aggregating \$18,510,645 were sold. Roads, paving and bridge bonds continue to hold first place in the value of securities marketed, the total for last month being 46 issues of \$10,954,665 par value. This year 389 issues for this class of work have been sold, the par value totaling \$97,391,315.

Bonds sold for miscellaneous work in September had a total value of \$3,510,240, representing 29 issues, and such bonds sold since the first of the year aggregate \$74,826,115, comprising 266 issues.

School bonds stand third; the valuation of 328 issues sold being \$43,200,080, and of this amount \$1,125,240 is for 12 issues marketed last month.

Sewer, drainage and water works improvements are provided through the sale in the nine months past of 197 issues having a par value amounting to \$27,711,500.

SUMMARY OF BOND ISSUES BY CLASSIFICATION AND BY STATES FIRST NINE MONTHS OF 1922

	Number of Issues	Roads	Schools	Sewers	Misc.	Value Total				
Alabama	11	\$4,980,000	10	\$1,518,000	1	\$60,000	14	\$2,440,500	36	\$8,998,500
Arkansas	22	2,969,500	10	593,000	6	398,000	16	3,560,500	54	7,521,000
Florida	38	6,821,000	18	1,860,000	16	1,542,500	38	9,268,000	110	19,491,500
Georgia	14	3,009,000	15	5,133,500	6	1,053,000	4	333,000	39	9,528,500
Kentucky	7	1,235,000	11	1,931,500	6	934,000	5	3,252,500	29	7,253,000
Louisiana	32	4,542,500	20	2,286,000	11	1,469,500	17	9,649,500	80	17,947,500
Maryland	16	2,369,000	6	658,000	7	1,585,000	11	1,461,000	40	6,073,000
Mississippi	14	1,957,000	17	679,000	7	334,500	13	3,952,000	52	6,922,500
Missouri	14	6,933,000	16	2,798,000	19	3,270,000	15	18,420,865	64	31,422,465
North Carolina	61	25,962,500	58	10,873,000	32	3,629,000	41	5,636,000	192	46,100,500
Oklahoma	10	1,073,400	16	2,158,480	17	3,452,000	18	1,009,000	61	7,692,880
South Carolina	25	3,515,000	22	1,960,500	10	2,976,000	3	283,000	60	8,734,500
Tennessee	22	2,367,665	16	1,519,000	7	1,050,000	13	2,382,000	58	7,318,665
Texas	86	26,898,750	79	8,131,500	47	5,383,000	40	4,468,250	252	44,881,500
Virginia	12	2,077,000	8	662,000	5	575,000	16	6,680,000	41	9,994,000
West Virginia	4	681,000	6	438,000	2	2,030,000	12	3,149,000
Totals	389	\$97,391,315	328	\$43,200,080	197	\$27,711,500	266	\$74,826,115	1180	\$243,129,010

SEPTEMBER

SEPTEMBER								
	Number of Issues	Roads	Schools	Sewers	Misc.	Value Total		
Alabama	1	\$150,000	1	\$73,000	2	\$220,000	4	\$443,000
Arkansas	3	350,000		1	\$58,000		4	408,000
Florida	6	785,000		1	25,000		13	1,285,000
Georgia	1	103,000	1	60,000	2	230,000	4	393,000
Kentucky	1	42,000	1	250,000			2	292,000
Louisiana	3	756,000		3	700,000	3	9	2,014,000
Maryland	1	50,000			2	425,000	3	475,000
Mississippi	2	136,000		3	157,500	2	7	423,500
Missouri	4	5,087,000	1	224,000	1	89,240	7	6,195,240
North Carolina	7	760,000	2	60,000	2	130,000	15	1,295,000
Oklahoma			2	283,240			2	283,240
South Carolina	2	253,000	1	25,000			4	428,000
Tennessee	3	333,665		2	135,000	3	7	563,665
Texas	9	1,462,000	2	125,000	3	393,000	21	2,875,000
Virginia	3	687,000	1	25,000	1	25,000	6	1,137,000
West Virginia								
Totals	46	\$10,954,665	12	\$1,125,240	21	\$2,920,500	29	\$3,510,240

American Iron and Steel Institute Meets This Month.

The twenty-second general meeting of the American Iron and Steel Institute will be held at the Hotel Commodore, New York City, on Friday, October 27. Following is a list of papers to be read at the morning and afternoon sessions:

Address of the President—Elbert H. Gary, Chairman, United States Steel Corporation, New York.

Modern Methods of Mining Coal—H. Foster Bain, Director, Bureau of Mines, Washington, D. C.

The Storage of Bituminous Coal—H. H. Stoeck, Prof. of Mining Engineering, University of Illinois, Urbana, Ill.; J. V. Freeman, Director, Coal and Coke Research Laboratory, United States Steel Corporation, Joliet, Ill.

Present Status of the Electric Furnace in Refining Iron and Steel—J. A. Mathews, President, Crucible Steel Company of America, New York.

Economic Importance of the Power Plant in the Steel Industry—E. F. Entwistle, Assistant General Manager, Steelton Plant, Bethlehem Steel Corporation, Steelton, Pa.

The Steel Requirements of the Automotive Industry—C. H. Wills, President C. H. Wills and Company, Marysville, Mich.

Heating Furnaces for Blooms, Slabs and Billets—W. P. Chandler, Jr., Fuel and Experimental Engineer, Carnegie Steel Co., Duquesne, Pennsylvania.

Use of Liquid Fuel in Metallurgical Furnaces—R. C. Helm, Director, Worcester Research Laboratory of the American Steel and Wire Co., Worcester, Mass.

The Thermal Efficiency of the Open Hearth Furnace—C. L. Kinney, Jr., Superintendent, No. 1 Open Hearth Department, South Chicago Works, Illinois Steel Company, South Chicago, Ill.; G. R. McDermott, Fuel Engineer, South Chicago Works, Illinois Steel Company, South Chicago, Ill.

Fluor Spar and Its Uses—G. H. Jones, President, Hillside Fluor Spar Mines, Chicago, Ill.

Discussion from the floor will follow the reading of the several papers.

Storage Dam and Ditches to Cost \$1,750,000.

Sabinal, Texas, Sept. 23.—[Special.]—Surveys have just been finished for a proposed system of irrigation, including a large water storage dam across the Frio River, a few miles north of here. As a means of financing the project an irrigation district to embrace 40,000 acres will be created and bonds issued upon the lands. The cost of the dam, canal and ditches will be approximately \$1,750,000, according to estimates of engineers. On 40,000 acres of land it will require a tax of \$3 an acre a year to pay the interest and return the principal in 40 years. With proper irrigation the land should produce a bale of cotton, 100 bushels of corn, or 120 bushels of oats to the acre, it is explained.

The plans call for a concrete dam, 600 feet long and 140 feet high between the east and west bluffs of the Frio River, 20 miles northwest of Sabinal, and the construction of an earthen dyke across a lateral draw. This will impound the water from 375 square miles, forming a lake containing 130,000 acre-feet, which will be sufficient to irrigate between 35,000 and 40,000 acres annually. The reservoir will catch enough water to carry crops through two and half seasons of drought when there is no rainfall or floodwater to rely on.

A business block and apartment building, 100 feet long and 35 feet wide will be erected by J. H. Mitchell, at Welch, W. Va. A new bridge, 12 feet in width, to be built across the Elkhorn river will bisect the lower floor of the building.

Significant Signs of Activity South.

\$10,000,000 in Building Under Way at Louisville.

According to a survey made recently by David M. Brucker, building inspector of Louisville, Ky., construction work now under way involves the expenditure of approximately \$10,000,000. Major structures being built will cost about \$6,000,000, and 500 residences aggregate a total of \$2,500,000, which with miscellaneous construction valued at \$1,500,000 makes up the total program. For the fiscal year ended August 31, the valuation of construction undertaken was nearly \$14,000,000.

\$1,000,000 Building Program at Vinita, Okla.

The building program in Vinita, Okla. this year will involve the expenditure of approximately \$1,000,000 according to a survey just completed. The city itself has a \$500,000 expansion program providing for paving, curbing, new sewer lines, fire department improvements, increased water works facilities and school buildings. A new building for the State Hospital for the Insane has just been completed at a cost of \$150,000. Private homes, apartment houses, churches, and similar structures are estimated to cost \$200,000.

Will Erect Plant at Dallas for Manufacture of Ornamental Iron and Structural Steel

The Southern Wire & Iron Manufacturing Co., according to W. A. Sedgwick, president, plans the erection of a new plant of four factory units in Dallas, Tex., in the near future. Ornamental iron, structural steel, fire and elevator doors, fire escapes and miscellaneous similar products will be manufactured. A site of seven acres has been secured for the proposed plant.

Chattanooga Pipe Plants on Full Time.

Indicative of the vast amount of home building going on throughout the country at present are the full time operations of Chattanooga, Tenn., soil pipe plants. The United States Cast Iron Pipe & Foundry Co. now have 700 men engaged producing pipe for gas and water mains. Other plants will work at capacity, once a supply of raw materials and the necessary cars for shipment of finished products are assured.

Bids for Constructing Twenty Officers' Quarters.

Bids will be received on October 18 by the Constructing Quartermaster at the Aberdeen Proving Grounds, Aberdeen, Md., for construction of 20 quarters for officers. The buildings will be of hollow tile, and stucco exterior, heated by individual steam plants. Six will be 67 by 40 feet, one 50 by 68 feet and thirteen will be 38 by 60 feet. Twenty stables, each 30 by 140 feet, will be erected.

\$250,000 Baptist Church Group at Baltimore.

A group of church buildings costing \$250,000 will be erected at Liberty Heights and Thornton Ave., Baltimore by the First Baptist Church. Plans are now being prepared by Clyde N. & Nelson Friz, architects. A three story Sunday School building, a one story and basement and church structure, and a three story parsonage will make up the group.

Six Story Building of 22 Apartments.

The J. L. Robinson Construction Co., Baltimore, has the contract for erection of a six story building containing 22 apartments for the Gwynnwood Apartment Company of Baltimore, after plans by Theodore W. Pietsch, architect.

Bids on Junior High School, Baltimore.

Bids will be received on October 18 for the Northeastern Junior High School of Baltimore. Josias Pennington, architect, 330 N. Charles street has completed the plans.

Eleven Story Addition to Fraternal Building.

An addition costing \$165,000 is to be made to the present structure of the Grand Lodge A. O. U. W., Little Rock, Ark. It will be 50 feet deep, 11 stories high, and contain 110 offices.

Preparing Plans for Theatre Building.

Plans are being prepared by G. Lloyd Preacher & Company architects and engineers, Raleigh, N. C. for the State Theatre to be erected in that city at a cost of \$150,000. It will have a seating capacity of 1400 and occupy a site 70 by 190 feet.

\$200,000 Masonic Temple for Durham.

The contract will be awarded early this month for a Masonic Temple to be erected in Durham, N. C. after plans by Milburn, Heister & Co., architects of Washington, D. C. and Durham, N. C. The structure will cost approximately \$200,000 and will be 60 by 100 feet, six stories high of fire-proof construction.

To Begin Construction of \$375,000 Apartment House.

Work will start within the next thirty days on a \$375,000 apartment house in Vicksburg, Miss. to be known as the Aeolian Apartment Building. The architect, H. H. Havis, will supervise construction of the building which will contain 49 apartments and two stores. G. L. Miller & Company, of Atlanta, will finance the project.

Contract Let for \$250,000 Richmond Hospital.

The Wise Granite & Construction Co., Richmond, Va., have the contract for erection of a \$250,000 hospital for the Johnston-Willis Hospital, after plans by Marcellus E. Wright, Richmond, Va. The new building will be 40 by 165 feet, 5 stories high with basement and sub-basement, and of brick, limestone, and terra cotta exterior with a reinforced concrete frame.

\$225,000 Addition to Hotel Ansley.

Plans have been announced by L. J. and C. L. Dinkler of Atlanta, Ga. for an addition of 125 rooms to the Hotel Ansley at a cost of about \$225,000. Harry Carr has the general contract for the new building which will be 12 stories high. When this unit is complete the Ansley will have about 450 guest rooms all with private baths; the plans will permit of a similar addition in the future. G. Lloyd Preacher & Company, Atlanta are the architects.

\$2,000,000 Contract Let for Baltimore Bank.

The George A. Fuller Company, of New York, has been awarded the contract for erection of the \$2,000,000 20-story bank and office building for the Citizens' National Bank of Baltimore to be erected at the southwest corner of Light and Redwood Streets. The buildings that formerly occupied the site have been razed by J. Henry Miller, Inc. of Baltimore. The new structure will have a frontage of 77 feet on Light street and 116 feet on Redwood street, and will be equipped with all modern devices. Graham, Anderson, Probst and White, Chicago, are the architects.

Many Big Building Projects at Memphis.

Memphis, Tenn. is in the midst of a big building activity. A 22-story office building is being erected by the Columbia Mutual Life Insurance Society at a cost of about \$1,250,000. The foundation for a municipal auditorium to cost \$1,500,000 has been placed. Improvements to the water plant and lines will cost about \$2,500,000 and approximately \$1,000,000 is being spent by the city and government in improving river and rail terminals. A 12 story hotel to cost \$1,225,000 and a \$750,000 building for a fraternal order are among the other big projects. Besides, a number of important big buildings are planned for in the near future.

Merits and Demerits of Coal Storage.

By GEORGE H. CUSHING, Washington, D. C.*

Bituminous coal storage, in present day discussion, is being glorified into a sort of a panacea for all the ills of the coal industry. The operators, the wholesalers, the consumers and the municipalities are being asked to engage in it on a large scale—to close their eyes to its possible demerits and to accept its merits without question. It is presented to the public as an unmitigated blessing if only the thing can be done on a large enough scale. The consumer, who must in the end pay the bill, will want to cross-examine the suggestion before he adopts it. To do just that one thing is the purpose of this article.

Bituminous coal storage is advocated because, it is claimed, it will do these various and sundry things:

1—Allow fewer mines to produce the nation's annual coal requirements; wipe out the unnecessary bituminous—"soft" coal mines; reduce the investment in coal mining and hence cut the industry's overhead which the consumer has to pay; lower the cost of production in each mine by giving more steady working time to each; and cut the price to the consumer accordingly.

2—Give more steady work to the miners who are employed by the surviving mines; eliminate some 200,000 miners from the bituminous industry and make them available as workers in other industries; increase the annual earnings of the active miners; and, thereby, permit a reduction in the wage scale and hence in the labor cost of producing coal.

3—Stabilize the coal business to the point where we will avoid recurring periods of over-supply and famine; remove coal from the political area as one of the disturbing influences on our political life; and, free the consumer from any further need to guess as to what his future supply of coal is going to cost him.

4—Eliminate the wholesaler and with him all speculation in coal which today drops prices below the actual cost of production and tomorrow raises them to the heights of extortion.

5—Insure the consumer against a coal famine and wildly fluctuating prices.

Among the truly careful students of the coal question, these various things are recognized to be facts:

First—Anthracite coal was once subject to the same "over-production" which is now a big feature in bituminous. It was stabilized by storage—after control of the coal land had been acquired by a few affiliated interests. Wild fluctuations disappeared, but none of the advertised benefits of either stabilization or storage have accrued to the people. Instead, since 1917, the average labor cost of anthracite production has risen from \$2.12 per ton to \$4.32 per ton. The number of miners has not been decreased but rather has increased. Storage by the consumer has not, in twenty years, been materially increased. And, the fact of the customary storage by the producers on April 1st this year will not prevent a disastrous shortage this fall and winter as a result of the five and half months strike of the anthracite miners. Also, although anthracite storage has been practiced for 20 years or more, only the railroad coal companies—those having unlimited means behind them—have indulged in it. The "independents" have never stocked a pound of coal.

Second—The monthly shipments of bituminous coal from the mines are in no sense equalized. Instead, in July, August, September, October, November, January and—gen-

erally—February they are above the monthly average of the year. In the other months they are below the monthly average. However, in the same months of each year, the record of car loadings on the railroads show that the monthly fluctuations in all other industries are almost identical with those in coal. That is, in some fall months the coal shipments sometimes rise as much as 25% above the monthly average of the year. When that occurs, it is found that the shipments of all freight have similarly risen in those same months. In April, sometimes, the shipments of coal fall as much as 25 per cent below the monthly average of the year. When that occurs, it is found that in that April, the shipments of all freight fall similarly below the general average of the year. Thus there is a relation between the shipment of coal and the trend of general business which cannot be changed by tampering with coal alone.

Third—Roughly speaking, there are 10,000 bituminous coal mines. If 6000 bituminous mines could be kept steadily employed they could supply all of the bituminous coal which the country reasonably requires. Also, roughly, there are 600,000 bituminous coal miners. At the outside, 400,000 would be sufficient if they were kept constantly employed. However, it is not known whether there are too many mines or whether it merely is true that each one is overmanned. It is not yet assured that, if the mines should be reduced to the essential number that the consumers—having a fluctuating and uncertain need for coal—could be induced to take their coal in equal monthly installments. It is sure that—without first gaining complete control of the land and hence complete control of competition—the existing "essential mines" would not undertake to store coal and face well-nigh inevitable bankruptcy.

Fourth—Roughly speaking, it costs fifty cents a ton to put coal in storage, to hold it for a period and to reclaim it. Such a business transaction is justified only if the current price of coal is known to be fifty cents a ton, at least, under the average yearly "open market" price at the time of storage or if it is sure that the open market price is going to be more than fifty cents a ton above the storage price at the time the coal is reclaimed from storage. In other words, storage must justify itself as a commercial transaction or it will not be indulged in.

Fifth—Some coals will store without deterioration and without any great danger of spontaneous combustion in any climate. Other coals will store in certain climates only and under carefully planned conditions only. A third grade of coal will not store at all without involving the greatest possible risks.

With the record of the major claims for storage and with the admitted facts about storage before him, the coal user will want to sit down and figure out not only precisely what part he is expected to play in this general scheme but whether it is going to prove to his advantage to play that part. He will discover by such analysis that of the five claims made for coal storage only one concerns him directly.

That is, he has his own business problems to worry over. He is not, therefore, under any binding obligation to subtract any time or money or anything else from his own business to help straighten out the snarls into which the bituminous coal industry has allowed itself to drift. In vulgar parlance, if the bituminous operators cannot manage their own business successfully and economically it is no skin off the nose of the other business men of the country.

In the same vein, the average coal consumer has labor problems and troubles of his own in his own business. He

*Mr. George H. Cushing, a veteran editor and writer, has for years specialized on matters relating to coal production, marketing and consumption. Following a long service as editor of one of the leading coal journals of the country, he was for some time managing director of the American Wholesale Coal Association. His familiarity with all matters relating to the subject gives him rank, therefore, as an authority on coal.

cannot subtract any thought or money or energy from his own problems to devote them to straightening out the tangles in the bituminous industry, which he does not understand.

Futhermore, every coal user these days has political problems in his own business with which he is constantly wrestling. He knows that the political gentlemen are likely to get their heels over their necks every time they tackle an economic question. If he should interest himself in efforts to avoid political snarls in the coal industry, he would soon find it necessary, on the same theory to follow the political gentlemen into every other line of business. In consequence, he would soon find himself wholly out of business and wholly in politics.

Thus—since the coal-user cannot be expected to expose the troubles of others—the only questions which come directly home to him are:

Would stabilization of coal by storage reduce the average price of coal enough to justify the experiment?

Does the so-called insurance against coal shortages really insure, and is that insurance worth what it will cost?

Looking at the effect of stabilization by storage in the anthracite field, the consumer must answer that the effect has not been to reduce the price but on the contrary has been steadily to increase it. He, therefore, disposes of that claim by discrediting it.

This leaves only the question whether the insurance insures and whether it is worth what it costs.

As to whether storage prevents shortages. We have 75,000,000 tons of bituminous—the largest coal pile in history—in storage on April 1. Undoubtedly this softened the blow of the strike. Also, without doubt, it protracted the strike. Equally without doubt it did not prevent, for the latter reason, either a shortage or high prices.

As to whether it is worth what it costs: Roughly, it requires a cubic yard of space to store a ton of coal. The best grades of bituminous coal cannot be piled higher than twenty feet without extreme danger of spontaneous combustion. Poorer grades of coal cannot be piled so high. Under these conditions, it becomes a question to find the space in which to store the coal of the kind that is commonly used. That is, smokeless coal constitutes less than 5 per cent of the total production. It is proposed to store, at all times, 10 per cent to 15 per cent. The big problem is to store the other coals.

The Chicago Building Managers Association made a survey of this question, through a committee of which I was a member, in the fall of 1916. They were concerned, at first, only in the simplest of all problems—to find storage space for smokeless coal, which will store safely under any conditions in any climate. They first tried to find space in the basements of their own buildings and found that if such space were available it could be rented far more profitably to shoe-shining parlors, barber shops and cafeterias. They hunted for retail yards which would do the storing for them only to find that their space was more than crowded with the regular business of the retail yards. They hunted for convenient vacant real estate which could be rented at a reasonable figure. The nearest available space would have involved such a long truck haul that the cost would have been approximately \$1.50 per ton.

Since then I have searched through all of the cities of the congested Eastern part of the country only to find that the space was not available at all or so high priced that it could not possibly be used for coal storage. For this reason, the first big question is to find the space in which to do the storage. That makes the question purely personal with each consumer of coal and lifts it out of the list of general topics:

If the space can be found for the storage of coal, there is one fact which is being emphasized in the coal industry which

should not be left out of consideration. Every time the coal question comes up for discussion it is pointed out that there is always abundant production or productive capacity at the mines but, in times of distress, it is always impossible to get enough coal through to destination because of the shortage of railway equipment. It is true, therefore, that when the demand for coal is keen and when prices are rising, the fault lies with the carriers and not with the coal mines. And, it is generally admitted these days that the carriers have been reduced to a constant condition of incapacity by prolonged regulation and by the disastrous experiment at governmental operation. But whatever the cause it is admitted that the railroads are inadequate.

It has been shown, in one of the proceeding paragraphs, that the railways always are overloaded in certain months of the year. It is shown, in that same paragraph, that they are equally underloaded in other months in the year. It is known now that this is an annual occurrence. It is equally known that the months of overload are the months of strong market prices for coal. It is known likewise that the months of underload are those of subnormal prices for coal. These facts make their obvious suggestion to the coal user who can find the space for coal storage. That is, it would be strictly good business to buy coal in the off months for use during the months when railway movements are difficult and when prices are high.

When about to indulge even in this sort of storage one fact ought to be kept in mind. Customarily the coal contracts are signed in the spring. The contract price for coal, customarily, is slightly higher than the current "open market" price, but it is pitched much below what later is expected to be the "open market" price. All told, the contract price is a little below—usually about fifteen cents a ton—what is calculated to be the average price on the spot market for the year.

It has been suggested, frequently, that this contract coal should be put in storage. On that score, this fact should be kept in mind. It costs fifty cents a ton to put coal into and to take it out of storage. The contract price is but fifteen cents a ton below what is expected to be the average open market price. To store contract coal therefore saves fifteen cents and loses fifty—a net loss of thirty-five. That is not good business.

It is possible, however, to pick up, during the early months of the coal year, considerable quantities of "distress coal" which is sold at considerable sacrifice to the producer and the merchant. If this coal could be bought and put in storage—leaving the contract coal to meet the daily requirements of the plant—it would prove, often, to be an excellent investment. This, again, is purely a personal question with the user.

It is not my intention to attempt to exhaust the subject in this one brief article on one of the biggest questions which has confronted the country. All I can hope to do is to present those considerations, which will stir the thought of the user and to direct that thought into particular channels which are likely to prove fruitful to him. I have gone sufficiently into the question to persuade some that storage is out of question so far as they are concerned. And I have probably persuaded others that storage will be distinctly advantageous to them. If that is the net result of what has been done up to this point the article will have served the precise purpose for which it has been written.

For those who, as a good business venture, will want to store coal, a few practical suggestions may come in handy:

1—Smokeless coal—Pocahontas, New River, Tug River, Georges Creek and Somerset county (Pa)—can be stored in the open on the ground, in all seasons in any climate without any great danger of spontaneous combustion. It is not advisable, however, to store it higher than twenty feet.

2—Coals running high in sulphur, having a tendency to have fire clay in the impurities and running high in volatile

matter, should be stored at least partially under cover—so that the alternate rain and sunshine does not get directly at the pile—and should be stored on a concrete floor to keep the moisture from getting at the coal from the bottom of the pile.

3—When storing any high volatile coal it is wise to store the larger sizes in one pile and the smaller sizes in another. The two sizes can be mixed when being fired if desired. Separation of the sizes during storage tends to prevent spontaneous combustion. All high volatile coals should be stored on a concrete floor.

4—When storing coals of different grades in the same pile, care should be taken to select coals which when fired will not produce bad clinkers. Many coals when mixed will burn admirably. Others will not burn at all without producing bad clinkers. The character of the furnace equipment will have to determine the purchase of coals for storage. That is, vibrating stokers have a tendency to cause certain coals to clinker. Chain grate stokers cannot of course burn a coking coal. These things must be kept in mind.

5—When storing coal which is inclined toward spontaneous combustion—and indeed when storing any coal at all—it is well to insert perforated pipes from the top to the bottom of the pile and at intervals to lower thermometers into those pipes to take temperature readings near the bottom of the pile. When the temperature starts to rise it is evident that danger is only a short distance ahead. Then it is wise to turn the pile over—to move it from one point to another.

6—In case of fire, water should not be relied upon to extinguish it. Chemicals which smother the fire are more reliable. However, it is so difficult to reach the seat of the fire even with chemicals that turning the pile over—and burning in the furnace at once the hottest of the coal—is about the only safe method of procedure.

MADE-IN-CAROLINA EXPOSITION NOW OPEN. Wide Diversity of Products Shown—Large Attendance and Many Sales Feature the Exhibit.

Charlotte, N. C., Oct. 2—[Special.]—The Made-In-Carolina Exposition opened in this city September 25, for a two weeks exhibit of the different products of the industries of North and South Carolina. This is the second exposition; the first was held in Charlotte last year. This season it is housed in its own building, erected by the Exposition Realty Co., and leased to the Carolinas Exposition Co.

The new home is two stories, 100x300 feet, with a floor space of 30,000 square feet to the floor. It has an auditorium in the rear of the second floor, 100x200 feet, which will seat 2800 people. The cost of the building is \$115,000, and it was hurried to completion for this show.

Within the building are 225 exhibits, and there are from one to twenty different concerns represented in each group. They display over 3000 different products made within the two states represented and cover practically everything one needs in business or home.

Over one hundred cotton mills are represented, showing everything from a machine that picks the blooms from the stalk to machinery in the gin, weavers, threaders, looms, dyers, etc., and the process is followed until one sees the cotton exhibited in finished articles of clothing from stockings to hats. There are booths of carpets, rag rugs, handkerchiefs, socks, stockings, overalls, shirts, dresses of all kinds.

Wheel-barrows, plows, cultivators, baby-buggies, disc-harrows, wagons, automobiles, batteries, tires, tubes, wagon bodies, truck bodies, tops, curtains and tools are displayed and all accessories for everything on wheels.

The building trade is represented by everything that goes into a building of any kind, from the brick and cement for the foundation to the weathervane on the roof. All manner

of fancy and pressed brick are exhibited. There are several kinds of Made-In-Carolina paints, varnishes, stains, etc., with window and door frames in the exhibit, also a complete saw mill that turns out the woodwork.

The display of foodstuffs made in the two states covers practically everything that goes on a table. It is one of the most interesting in the exhibit, as it shows all stages of the canning and cooking process, and has drawn crowds of housekeepers each day. Within the bounds of North and South Carolina is grown practically every fruit and vegetable that is cultivated in the United States, and it is only within the past few years that the states have made any effort to compete with the nationally known packers and canners. The exposition shows, however that the Carolinas now put up not only for themselves, but are shipping quantities, of nearly every article of food.

Last year there were over 70,000 paid admissions to the show in the two weeks it was open. The first three days of the exposition this year make the promoters confident that the attendance this year will exceed that figure by 15,000. The number of people attending last year was the largest figure ever reached in any exposition, fair or show in the history of North Carolina.

That the show is a direct paying proposition to the exhibitors is demonstrated by that fact that the sales made on the grounds have not only pleased, but surprised the majority of exhibitors, a number of whom have already reported to the managers that they have made more sales within the three days than they expected to make during the exposition.

It is the only exposition of its kind held east of Denver, which has a permanent exhibit, and authorities state that this one displays more varied lines of industrial products than any other of its kind ever held. That it has become a permanent annual affair is demonstrated by the fact that the company has made such heavy investments in the land and building, and by the interest and enthusiasm shown by the exhibitors. Already plans are under way for the enlargement of the exposition for next year, when it is expected to have each individual industry in the state represented.

Machine for Making Hay by Dehydration.

New Orleans, La., Sept. 20—[Special.]—A machine has been devised by George A. Hero of this city, for making hay by a process of dehydration. It is declared to be particularly effective with "pyfeen" grass which contains a great deal of moisture, grows in soggy land, and "ripens" at a time when rains are almost continuous.

Experiments conducted with a few tons of rice in the "dough" stage, sending the entire plant, rice kernels as well as stalk, through the machine, produced hay of a green color in lengths of one inch or less, and the rice exploding under the heat was found in small particles and in a shape declared to be readily assimilable.

Mr. Hero makes the following claims as to the economic significance of his machine:

Rice production will not average more than 10 barrels to the acre. At a top price of \$4 a barrel, that is \$40 an acre return to the farmer. An acre of rice will yield four tons of hay. Timothy, which is far inferior, is selling here for \$30 a ton. If the rice hay brings only \$25, that is \$100 an acre, and it is \$100 made easier than \$40 made by gathering the grain.

Furthermore, he says, the production for hay can be considerably increased by taking off the second cutting—the crop that grows after the August harvest but does not reach full grain-producing maturity now before frost. He argues that the production of the rice cereal can be limited by farmers turning part of their acreage over to hay-making and this will increase the price of the cereal.

Extensive Additions and Improvements to Plant of Weirton Steel Co.—Thirty-seven Coke Ovens and Eight Sheet Mills Included in Program.

Extensive improvements are being made to the Weirton Steel Company's plant at Weirton, W. Va., according to an announcement given the MANUFACTURERS RECORD by C. H. Hunt, Chief Engineer. Thirty-seven by-product coke ovens designed to produce 600 tons of coke daily are being constructed; also plants for the recovery of tar, ammonium sulphate and motor benzol. Eight sheet mills with complete annealing, pickling and galvanizing departments are included in the program. A plant is under construction in connection with the blast furnace department for sintering 200 tons of flue dust daily.

The work now going on at the Weirton plant, is described by Mr. Hunt, as follows:

"We are proceeding with the construction of 37 by-product coke ovens for the manufacture of coke for our blast furnace. These ovens will be of the new Koppers design, 14-inch average width, designed to operate on 12 to 13 hours coking time. The ovens will be arranged in a single battery designed to produce 600 net tons of blast furnace coke per day.

"The plant will also be complete with equipment for the recovery of tar, ammonium sulphate and motor benzol. The surplus gas not required for heating the battery will be used for various metallurgical purposes in our plant. The entire contract for the construction of this plant has been awarded to H. Koppers Company, of Pittsburgh.

"In addition to the above, we are also proceeding with the construction of eight sheet mills to be complete with annealing pickling and galvanizing departments for the manufacture of black and galvanized sheets.

"We are also constructing in connection with our blast furnace department, a plant containing a Dwight-Lloyd sintering machine having a capacity for sintering 200 tons of flue dust per day, the sinter being re-charged in our blast furnace for conversion into iron.

South Active in Building and Industry—Over 43,000 Items Published in Construction Department of Manufacturers Record Since January 1.

Industrial, building and general developmental activities in the South for the first nine months of 1922 show a total of 43,522 items published in the Construction Department of the MANUFACTURERS RECORD, as compared with 47,595 items published during the whole year of 1921 when the valuation of construction projects undertaken surpassed previous records. During the four weeks of last month 3925 items were published.

The total for September included 1942 industrial developments, 944 building items, 360 financial announcements and 543 machinery, proposal and supplies wanted notices. From the standpoint of numbers and the many different states showing in the activity, road and street construction items hold first place, the total for the month being 601. Announcements regarding work on bridges, culverts and viaducts numbered 148.

Dwelling construction which continues at a high level was represented by 220 notices. Last year dwellings figured prominently in the building progress of the South, and this year they will form an equally important part in the general construction program. There are indications that the demand for residential structures to fill the gap caused by retarded construction during the war and immediately thereafter has not yet been satisfied; in addition to this unusual shortage thousands of dwelling houses must be erected to take care of the normal needs and the increasing population.

School construction is progressing steadily, as shown by the publication last month of 181 items. In addition to the great number of schools now under way and contracted

for, many cities, towns, counties and private institutions have plans that insure a large amount of building of this character during the fall of 1922 and for next year.

A study of the activities evidenced by these items indicates a generally healthy industrial condition, all the more noteworthy because of transportation and other difficulties accompanying the strikes and resulting therefrom.

	Totals for Sept.	Totals Jan. to Sept. Inc.
Industrial Developments:		
Airplanes, Stations, etc.	2	16
Bridges, Culverts, Viaducts, etc.	148	1390
Canning and Packing Plants.	18	107
Clayworking Plants.	6	91
Coal Mines and Coke Ovens.	59	360
Concrete and Cement Plants.	7	53
Cotton Compresses and Gins.	13	113
Cottonseed Oil Mills.	4	32
Drainage Systems.	16	155
Electric Light and Power Plants.	90	874
Fertilizer Plants.	1	51
Flour Feed and Meal Mills.	14	156
Foundry and Machine Plants.	18	208
Gas and Oil Enterprises.	75	789
Ice and Cold Storage Plants.	25	400
Iron and Steel Plants.	3	21
Irrigation Systems.	2	17
Land Developments.	113	813
Lumber Manufacturing.	33	327
Metal-Working Plants.	24	257
Mining.	13	103
Miscellaneous Construction.	47	493
Miscellaneous Enterprises.	132	1487
Miscellaneous Factories.	138	1699
Motor Cars, Garages, Tires, etc.	102	1051
Railways.	6	108
Railway Shops, Terminals, Roundhouses, etc.	3	29
Road and Street Construction.	601	5498
Sewer Construction.	82	940
Shipbuilding Plants.	3	25
Street Railways.	1	13
Telephone Systems.	7	166
Textile Mills.	30	325
Water Works.	74	1649
Woodworking Plants.	32	370
	1942	19691
Buildings:		
Apartment Houses.	41	753
Association and Fraternal.	29	352
Bank and Office.	50	581
Churches.	83	1066
City and County.	43	377
Courthouses.	10	120
Dwellings.	220	2500
Government and State.	15	108
Hospitals, Sanitariums, etc.	35	367
Hotels.	40	386
Miscellaneous.	40	408
Railway Stations, Sheds, etc.	12	90
Schools.	181	2658
Stores.	106	1260
Theaters.	14	151
Warehouses.	26	300
	944	11486
Financial:		
Corporations.	80	727
New Securities.	280	3832
	360	4559
Machinery Wanted		
Machinery, Proposals and Supplies Wanted.	543	6552
TOTALS.	3780	42288
Fire Damage.	136	1234
	3925	43522

Bids Soon on \$300,000 Church Building.

Knoxville, Tenn., Sept. 25.—[Special.]—Bids will be opened on October 9 for erection of the First Baptist Church to be built at West Main avenue and Walnut street. The new structure is estimated to cost \$300,000 and will be of gray brick and Indiana limestone, with terra cotta trimmings. It will contain a large gymnasium and swimming pool as part of its equipment. The architects are Dougherty & Gardner of Nashville.

Refrigeration Engineers to Meet at St. Louis.

The thirteenth annual convention and exhibition of the National Association of Practical Refrigerating Engineers will be held at the Planter's Hotel, St. Louis, Mo., November 1 to 4. It is expected that 500 members from all parts of the United States will attend. The object is to further the art and practices of refrigeration engineering.

Relief to Agriculture Through Revival of War Finance Corporation Activities.

SECRETARY WALLACE, OF UNITED STATES AGRICULTURAL DEPARTMENT, REVIEWS EFFECTS OF GOVERNMENT ACTION ON PROSPERITY OF THE FARMER—PROPRIETY OF HAVING AGRICULTURE REPRESENTED ON FEDERAL RESERVE BOARD—WHY FREIGHT RATES ON FARM PRODUCTS SHOULD BE REDUCED.

[Two important and enlightening addresses were made this week by Henry C. Wallace, Secretary of Agriculture. The first was before a meeting of farmers and business men at Springfield, Ill., on October 3, and the other at the fair grounds, Davenport, Ia., October 4. In the first, Secretary Wallace reviewed the disastrous effects on agriculture of the action by the former Administration in bringing about precipitate deflation, and the effective aid the present Administration has given to relieve the agricultural depression through the revived activities of the War Finance Corporation. The reasons why the agricultural interests should be represented in the membership of the Federal Reserve System were also conclusively represented.]

In the second address, Secretary Wallace stressed the necessity for a reduction of freight rates on farm products, on a basis that would widen the present restricted markets for such products, while at the same time causing no impairment of efficiency in transportation service.

Extracts from these speeches are given herewith.—Editor Manufacturers Record.]

By HENRY C. WALLACE, Secretary of Agriculture.

The War Finance Corporation was originally created as an agency to help finance exports, agricultural and industrial. It functioned very effectively for a time in assisting exporters, working in harmony with and under the general supervision of the Secretary of the Treasury. In the spring of 1920, the Secretary of the Treasury, having power through the control of the finances of the War Finance Corporation, suspended its activities. Later in the year, as prices of agricultural products began to crumble, efforts were made to induce the proper officials to revive the corporation. These efforts failed, the excuse being given that there were no funds and no legal authority. Also it was intimated in high quarters that this was simply agitation to maintain inflated prices. It is, of course, impossible to say to what extent the precipitous decline in farm prices might have been averted had the War Finance Corporation been permitted to act vigorously during the spring and summer of 1920, and it is impossible also to measure the extent to which certain policies of other Government financial institutions contributed to the crash which came the following winter. I refer to such policies, for example, as the almost entire discontinuance of Government bond purchases for the sinking fund during the last half of 1920, and especially to the refusal of the Federal Reserve Board to longer accept paper of the cotton factor as eligible for the Federal Reserve System. That decision forced hundreds of thousands of bales of cotton on the market, with a consequent break in prices, and the embarrassment to bankers who had loaned on such paper was felt indirectly throughout the country.

When Congress met in December, 1920, it promptly passed a resolution directing the Secretary of the Treasury to revive the activities of the War Finance Corporation. This met opposition not only by him but by the President, who vetoed it. Congress, however, promptly repassed the resolution over the Presidential veto. But the Corporation did not function with any great activity until after March, 1921. Later in the summer, Congress added greatly to the powers of the War Finance Corporation and made it possible for that institution to carry financial help directly to domestic agriculture. This help was extended through banks in the agricultural districts. In thirty-three states committees of business men and bankers were promptly organized for the purpose of passing upon paper submitted for rediscount in their respective states. The banks in these states, overloaded as they were with farm paper which could not be paid, and which therefore constituted what has come to be known as "frozen assets," found immediate relief through this agency. It was

not possible to loan to farmers direct. Long before the machinery necessary to make such loans could have been set up, the crisis would have been passed. Within a few months nearly 7000 loans were made to banks in agricultural sections, in a total amount of \$161,000,000. Eighty-four million dollars was loaned to live-stock companies and banks upon live-stock security. Sixty-four million dollars was loaned direct to farmers' cooperative marketing associations. Including advances to finance agricultural and other exports, a total of more than \$355,000,000 was loaned by the Corporation.

The actual help given through the loans made by the War Finance Corporation does not begin to measure the help which came through this agency. Immediately the act was passed which enlarged its powers, a feeling of renewed confidence swept through the country. Money became easier to obtain. A more liberal policy on farm loans was generally adopted. The sacrificing of grain and live-stock was checked and the hope of farmers was renewed.

The story of the service rendered by this agency serves to illustrate the importance of taking the affirmative rather than the negative view in times of difficulty. There were many people who were disposed to accept the disastrous break in farm prices as inevitable and impossible to relieve by Government action. They were people of the same mind as those pious folks in days gone by who looked upon a death in the family from tuberculosis or typhoid fever as a visitation of the wrath of divine Providence, and not at all as a thing which they might have avoided by an observance of the now well-known laws of sanitation and health.

The law which created the Federal Reserve Board provided that in appointing members of that Board the President should have due regard "to a fair representation of the different commercial, industrial and geographic divisions of the country." The experience of the years 1919 and 1920 showed very clearly that agriculture as well as commerce and industry should have fair consideration by the Federal Reserve Board in determining great financial policies. Congress, therefore, passed a law amending the Federal Reserve Act, by providing that in appointing the members the President shall have due regard "to a fair representation of the financial, agricultural, industrial and commercial interests."

It is not the thought that agriculture should receive benefits to the injury of any other business or industry. The law as it now stands provides for a Board which shall represent in fact a cross-section of our financial, agricultural, commercial and industrial life.

Freight Rates on Agricultural Products Must Be Reduced.*

One of the heavy burdens which the farmer has been forced to carry at a time when he was least able to carry it has been the large increase in freight rates. In 1920 freight rates on many of the more important farm crops were almost double what they were before the war. These increased rates not only imposed a grievous financial burden but in many cases narrowed the market for crops which were not worth enough to carry the freight rate to distant markets. At the same time, the increased rates on the things the farmer had to buy added to his cost of living and the cost of production by just that much. Had prices of farm crops remained at the 1919 and early 1920 levels, the higher freight rates could have been paid without inconvenience. A freight rate of twenty-five cents a bushel when corn is selling for \$1.75 a bushel is not a serious matter, but a twenty-five cent rate on fifty cent corn is ruination.

The urgent demand by farmers for large reductions in freight rates have led some people to think that if the farmers could have their way they would put rates so low that the roads could not possibly operate. Nothing could be further from the truth. The farmer is almost wholly dependent on the railroad for the movement of his surplus crops and live-stock. Much agricultural freight is perishable and must have expedited movement. The farmer, therefore, has a direct interest in efficient railroad operation and knows that the roads must be permitted to charge enough to cover all proper costs of operation and enough in addition to give a fair return upon the money invested and thus keep capital in the business. Neither does the farmer want government operation of the railroads. He had enough of that in his three years' experience to satisfy him for all time. He will never forget the losses, both direct and indirect, which he suffered because he could not ship when his stuff was ready for market, and because of bad service.

Nevertheless, freight rates on farm crops and live-stock must come down. With present prices for his crops and with probable prices for the next year or so the farmer simply cannot afford to pay the present rates. They are out of all proportion to the pay he gets for what he grows.

It would not be fair to assume that the increased purchasing power of the freight revenue represents profit to the railroad. On the contrary, railroad cost of operation increased even more rapidly than railroad receipts. Apparently the largest item in the increased cost of railroad operation was composed of the advanced wages given railroad employees. A hopeful sign which points toward the possibility of reductions in railroad rates is the gradual reduction in the part wages contribute to the total operating cost. Apparently, the railroads are making steady progress in the reduction of these costs, and should therefore be able soon to make substantial reductions in freight rates on farm products.

In considering the matter of freight rates of agricultural products there are two things which should always be kept in mind. First, that the cost of transportation is essentially a part of the cost of production, so far as agriculture is concerned, and any increase in transportation costs must come out of the price the farmer receives. In this the farmer is at a disadvantage with the manufacturer, the jobber or the retailer, all of whom as a rule are able to add increased transportation costs to the price they get from the buyer and who are therefore interested not so much in the freight charge proper, but in being assured that the freight charge, whatever it may be, places them at no disadvantage in meeting competitors. Second, our business and industrial life has been

built up on a system of relatively low railroad rates for agricultural crops, designed to encourage their movement over long distances to industrial and business centers. A sudden reversal of this theory of rate making results in great economic injustice, from which the farmers are suffering now, and if persisted in will keep us in a state of confusion and agricultural and business uncertainty for a prolonged period. The increase in freight rates by the horizontal method, having little regard to the character of the product and to the economic effect upon the business of the nation, is wrong in principle and cannot be continued without baneful results to agriculture.

Freight rates on farm products must be brought down without impairing in any way the efficiency of the transportation service.

\$400,000 Company for Pineapple Production.

Stuart, Fla., Sept. 23—[Special.]—The Florida Growers, Inc., has been organized here with \$400,000 capital for the purpose of developing for pineapple production the land owned by the Florida Growers Guaranty Corporation and increasing the plantings at Stuart, Port Sewell and Hobe Sound. On a thousand acre tract at Port Sewell included in the new plantations, a large packing house will be built with a 40 car siding on the Florida East Coast Railroad.

The officers of the new organization are Carroll Dunscombe, president, S. W. Sparks, vice-president and treasurer and J. A. Aiglers, secretary.

\$200,000 Church Building for Memphis.

Memphis, Tenn., Sept. 22—[Special.]—Plans and specifications of the Union Avenue Methodist Church have been approved by the building committee for a structure on the site at the southwest corner of Union Avenue and Cooper street where a \$45,000 Sunday School building was erected last winter. The new building will cost probably \$200,000 or over, and will be of classic design constructed of brick with Bedford stone trim. A large pipe organ will be a feature of the auditorium which will have a seating capacity of 1500 people. The architect is Hubert T. McGee.

Candelilla Wax Company to Build Hydro-Electric Plant.

San Dimas, Mexico, Sept. 18—[Special.]—It is planned by the Mexican Candelilla Wax Company to construct a hydro-electric plant near here. The waters of the San Antonio Puenteillos and California rivers will be thrown together by means of canals and dams and conducted to a waterfall of 3000 feet which will afford initial energy for the proposed hydroelectric plant. After serving this purpose the water will be turned into the Ajoya River and used for irrigating a large area of valley land.

Increase in Automobile Production.

Figures received by the Department of Commerce show a considerable increase in the production of both passenger automobiles and trucks in August. The total production of passenger cars was 246,941, compared with 224,057 in July, while truck production in August amounted to 24,064, as against 21,357 in July. In both cases the August total exceeds any other month this year except June.

A statement issued by the Alabama Power Company, Incorporated, compares gross and net earnings month by month for the years 1919, 1920 and 1921 complete and for the first eight months of 1922. In July of this year gross earnings increased 9 per cent as compared with the same month of last year and in August, with a similar comparison, the increase was 11 per cent. Net earnings for each of these two months showed increase of 14 per cent as compared with the corresponding month of 1921.

* Extracts from a speech by Secretary of Agriculture Wallace before a meeting of farmers and business men at Davenport, Iowa, Wednesday, October 4, 1922.

A Florida Sugar Producing Company's Operations.

By AINSLIE A. GRAY, Chicago.

Suggestive of the possibilities of sugar production in Florida, long recognized by experts as destined to be one of the important sugar growing regions of the world, are the operations of the Florida Sugar & Food Products Co.

With headquarters in Chicago, Ill., and at Lake Worth, Fla., the company is very definitely committed to the development of sugar making in the Everglades and has a large property located on the east side of Lake Okeechobee, at Canal Point in Palm Beach County. Here it has completed the first stages of the development of a sugar estate.

A mill capable of grinding 400 tons of cane per twenty-four hour day has been erected. The factory proper is 100 feet wide and 200 feet deep, of steel construction. The steel was fabricated by the Virginia Bridge & Iron Company, of Roanoke, Va., on plans furnished by the Hauptman & Loeb Company, Ltd., of New Orleans, La.

According to the analysis made of the cane available, a twenty-four hour working day should grind an output of about 40 tons of sugar per day. The first crop will be ground with the present equipment, which includes a shredder and six-roll mill. Provisions have been made in the building specifications for the addition of two units of three rolls each to the milling capacity for the coming year. At present the set-up is complete for grinding to start on the first of January, 1923.

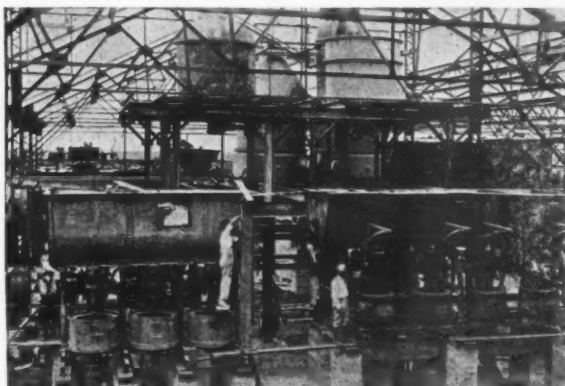
The factory construction has been under the supervision of S. W. Bollinger, of the Pittsburgh Coal Washer Company, Pittsburgh, Pa., assisted by J. O. Frazier and Tucker Budreaux, Engineers, of New Orleans, La. The machinery was purchased from the Hauptman & Loeb Company. Adjoining the factory is a machine shop, 100 feet deep and 50 feet wide. There is a temporary office, about 30 feet square, and permanent office quarters will be erected at an early date. For the accommodation of help, there is a boarding house, 130 feet deep and 40 feet wide, consisting of two stories, with a full equipment for housing about 40 men.

While foundations for the heavy machinery were easily secured, as a shelf of rock lies all under the factory site at a depth of three to four feet, the procurement of structural material and machinery involved a tremendous task, as over 90 carloads of steel, machinery, rock, cement and other ma-

terials were barged a distance of 40 miles on the Palm Beach Canal from the Florida East Coast Railway.

The principal product to be manufactured is white granulated sugar, the by-products consisting of molasses and syrup, and, of course, the usual run of second sugars.

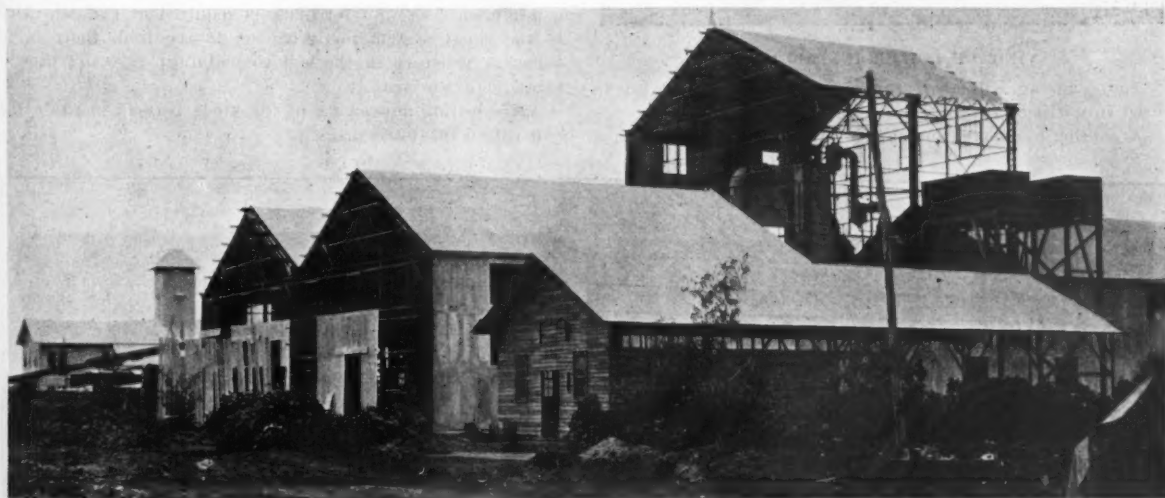
Most of the cane to be crushed will come from the company's plantation, about 20 per cent of the cane milled this season coming from farmers developing estates adjacent to the company's mill and plantation. Practically all of it adjoins the mill site, and the market in South Florida will absorb the entire capacity of the mill for the finished product.



MIXERS, CENTRIFUGALS, DOUBLE EFFECTS AND VACUUM PANS.

While the factory is finished the construction of the cane-handling equipment for the first crop is yet to be completed.

There will be required for this approximately one and one-half miles of 20 to 30 lb. rail, some for permanent railroad and some for portable use. Thirty to forty 3 to 4-ton standard and gauge cane cars and two light gasoline locomotives will be needed for the equipment. There will be in addition to the light plantation railroad one and one-half miles of main line standard gauge with 56 lb. rails which have been secured from the Florida East Coast Railway. One



PLANT OF THE FLORIDA SUGAR AND FOOD PRODUCTS CO.

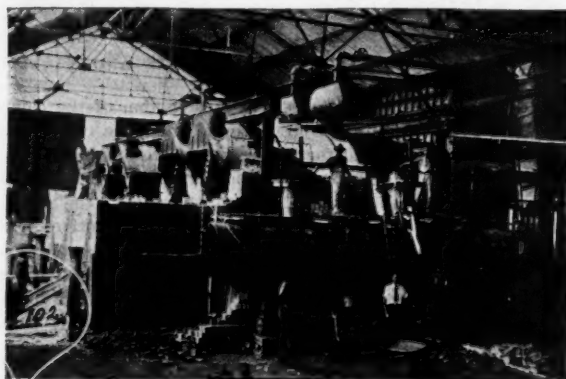
This general view of the development at Canal Point in Palm Beach County, Fla., shows machine shop, factory and cane carrier, office and employees' boarding house.



VOCATIONAL SCHOOL AT CANAL POINT.

The school is situated one and one-half miles from the factory, and a half mile from the plantation.

50-ft. cane derrick and a barge derrick will be required for handling cane. A steel draw bridge with a 50-ft. clear swing will be installed to bring cane cars across the Palm Beach Canal to the factory.



VIEW OF BOILER INSTALLATION.

The company will also provide quarters for colored help used in cutting cane.

According to expert cane agriculturists the grinding of cane

should usher in a new industrial epoch in the State of Florida and the South.

The territory immediately surrounding the proposed development of the Florida Sugar and Food Products Company is favorable to the operation of sugar cane estates. The main drainage canals and highway facilities required for the economical clearing, development and utilization of these lands, are practically completed. The upper Everglades have produced sugar cane since 1913; the fields planted then are still in good condition. No cane has been killed by frost in this locality. The lands in the area lying south and east of Lake Okeechobee are especially favored, as far as climatic conditions, transportation and fertility of the soils are concerned. The water of Lake Okeechobee covers an area of over 450,000 acres. This large area of water is heated during the day by the sun's rays, holding a moderate temperature during the night and serving as a very successful barrier against the cold northwest winds which sometimes occur during the months of February and March.

The fertility of the soil guarantees a maximum growth at a minimum cost. No fertilizer is required at present. Due to the canal system no irrigation is required, there being sufficient moisture in the soil to maintain a steady growth throughout the year.

Agricultural implements of all kinds may be used in the cultivation of the crops.



SIX MONTHS AFTER PLANTING.

These views show the first planting of U. S. cane seedling at the experiment station, which is on the company land. Also the appearance of the cane six months later.



PLANTING THE SEED.

Seed cane is available in the district for the immediate extension of new plantings, and the cane is free from disease and in a healthy condition.

In addition to the estate of the Florida Sugar and Food

by the individual stockholders of the company. There are also in the neighborhood of 30,000 acres of good sugar land within twenty-five miles of the factory, not including 1250 acres of first-class cane lands on Kreamer and Ritta Islands.

To the right—
Share cropping,
March, 1922.

Note the
young cane
in midst
of bean
crop.



Below—
Ratoon cane,
showing
condition of
field after
harvest.



Above—
Cane fields
of the
company
at
Canal Point.



To the left—
Cane
planting
in
1921.

Products Company, involving with its tributary plantations over 2000 acres, from a portion of which a crop may now be harvested, there is adjacent to this territory over 3000 acres of good sugar land, most of which is owned and controlled

It is understood that several other large organizations have recently acquired big tracts of sugar land south of Lake Okeechobee, upon which will be installed mills and refineries for the production of refined white sugar and its by-products.

Florida Citrus Crop Larger.

Production of citrus fruits in Florida for the 1922-23 season is estimated at 15,000,000 boxes by the Agricultural Department. Of this total, about 8,040,000 boxes will be oranges and tangerines and 6,600,000 boxes grapefruit. An early forecast of the California orange crop made August 1 is 13,750,000 boxes. The commercial citrus crop of Florida last season was approximately 13,300,000 boxes, of which 7,300,000 boxes were oranges and 6,000,000 boxes grapefruit.

By sections, the heaviest increase in production over last year is expected on the central highland ridge, especially through the eastern part of Polk County and the north end of Highlands County. South of the ridge, through parts of Hardee and DeSoto Counties, production may fall slightly

under last year since this section did not develop a good late bloom. The storm-swept territory of which Pinellas County was the center, will ship about as much fruit as it did last year. Farther up the West Coast an increase of 10 per cent to 15 per cent is in sight. The lower West Coast will run ahead of last season, principally on oranges, most of the fruit being from early bloom. The East Coast shows an average increase of 5 per cent to 10 per cent over last season, with fairly light crops on the ridge and a full crop in the back country.

Production of tangerines is estimated at 125 per cent of last year. Prospects are excellent with trees full of fruit. Production of limes will be slightly heavier than for last year.

Co-operative Marketing of Cotton and Tobacco—A Great Revolution Under Way in Handling Farm Products.

By FRED A. OLDS, Raleigh, N. C.

North Carolina, leading the South as a road-builder, is making a splendid record in two other lines of supreme endeavor: co-operative marketing of cotton and tobacco. The people of the state are at once gratified and cheered by the splendid tribute paid North Carolina on a recent cover-page of the MANUFACTURERS RECORD, and they are pushing the highways and the co-operative movement of cotton and tobacco growers; the first named as a state movement, and as to tobacco in a tri-state grouping.

With receipts already well beyond two thousand bales a day, the North Carolina Cotton Growers' Co-operative Association has hitched up its trousers for its initial stride into the cotton markets of the world.

On the basis of the 1920 crop, the Tar Heel co-operatives have signed up over 400,000 bales of cotton and have a membership of 30,000 growers. W. H. Austin, of Smithfield, who annually raises two thousand bales of cotton and who is one of the state's leading business men, is president of the Association.

The Association has secured Ashley Bing, former national bank examiner, as secretary and treasurer, and U. B. Blalock, farmer and merchant, whose home is at Wadesboro, is general manager.

The general sales policies of the Association are under the supervision of Chesley B. Howard, of Atlanta, Ga., a well known cotton merchant, who is general sales manager for the American Cotton Growers' Exchange, with which the Carolina co-operative is affiliated. Lawrence MacRae, of Greensboro, is sales manager for the State.

The board of directors decided to make a flat advance of fifty dollars on each bale of cotton delivered by members to the Association, with a further payment on long staple cotton to bring the advance up to fifty per cent.

North Carolina banks have lent the Association over \$2,000,000 for its revolving fund, and it has not as yet been necessary to call on the War Finance Corporation, which has agreed to advance the Association as much as \$10,000,000 for the orderly marketing of cotton.

Contracts for storage space have been made with seventy or more State licensed warehouses by B. F. Brown, manager of the cotton department, and receiving agents have been secured at two hundred other points in the cotton belt.

Concentration warehouses have been located at Greensboro and Charlotte, and sales representatives have been stationed in the latter city. The Association is prepared to do an export business and arrangements have been made for storage space at Wilmington and Charleston.

All cotton delivered by members will be stored in warehouses pending its sale. The object of the Association is the orderly selling of cotton, and it is receiving the cordial co-operation of practically every bank in the State while many hundreds of merchants who hold mortgages or liens have released cotton of members to the Association.

When the cotton is delivered to warehouses, it is sampled and the samples sent to the Raleigh headquarters. Expert graders, including one from Liverpool, grade and class the cotton. Where cotton is delivered to a receiving station, it is shipped direct to the nearest concentration warehouse for storage.

The Tobacco Growers Co-operative Association.

Eighty thousand determined tobacco farmers of North Carolina, Virginia and South Carolina have united under a binding contract in the effort to attain an orderly system of marketing their crops into what has become the largest mar-

keting organization of farmers in America—The Tobacco Growers Co-operative Association.

With the majority of the tobacco growers of three states on its roll, with 210 warehouses under its control, financed by the authorization of a loan of \$30,000,000 by the War Finance Corporation for advances to its members on the security of redried tobacco, and with loans of \$10,000,000 more from the banks of the tobacco belt and other sections; with a leaf department whose orderly handling and uniform grading of tobacco has proved second to none and with deliveries running weekly into the millions of pounds, the initial success of this giant organization of tobacco farmers is now unquestioned.

The sudden flash of prosperity, which came with the war prices of 1918 and 1919, revealed to the tobacco farmers of the South more clearly the deep abyss of poverty into which they plunged again with the crash of prices in 1920 to labor under the debts and crop mortgages with which some 75 per cent of them are struggling today. Utterly baffled in competition with modern organization of every other industry, they, following the brief flash of their prosperity, were driven by desperate need to see that their only hope in competition with big business by corporations lay in their own organization of big business through co-operation.

It has been tried and not found wanting by the fruit growers of California, by the cotton growers of Oklahoma, by the potato growers on Virginia's eastern shore, and a generation of co-operation in Denmark has made that little country the richest farming nation of the world.

Adhering closely to the successful principles of co-operative marketing that have brought prosperity to these other farming sections, the tobacco growers have organized to merchandise their products much as the United States Steel Corporation merchandises steel rails, or as the American Tobacco Company merchandises cigarettes—by expert salesmanship of large and uniform lots at the point of consumption rather than at the point of production.

As this new giant co-operative organization emerges from the abyss of debt and tenantry into which 75 per cent of the farmers of Virginia and the Carolinas have gone deeper and deeper during thirty years of the so-called auction system, there is no mistaking its power. Within only a few weeks of operation, the co-operative marketing of tobacco has demonstrated that it assures to the grower members the fairest system of grading and to the big tobacco companies, who are customers of the Association, the most satisfactory uniform lots of tobacco, yet attained.

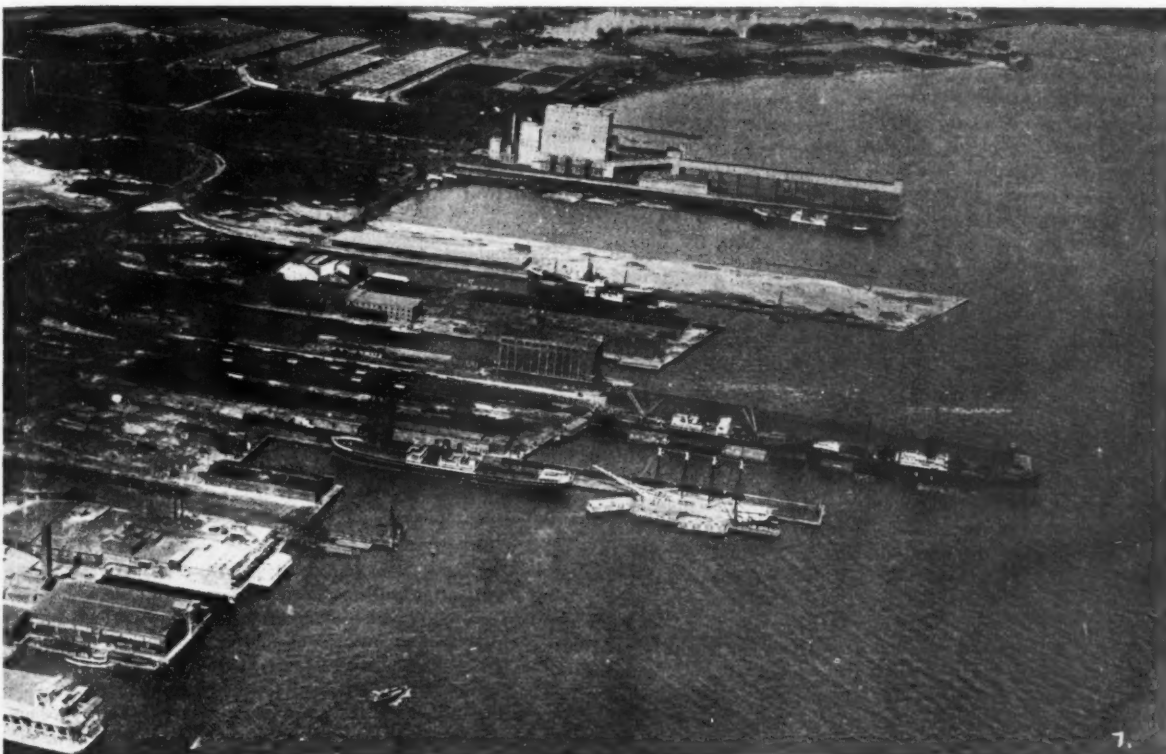
Contrary to the expectation of many, the Association has become a selling and not a holding organization. Only in so far as it can avoid the cut-throat competition of farmer with farmer, the panic rush to glutted markets, and the consequent manipulation of tobacco prices by the speculative interests, will the big co-operative hold tobacco for the farmers. Feeding the product slowly out to meet the world demand, this co-operative marketing machine composed of 80,000 farmers is organized for merchandising as opposed to speculation. As Aaron Sapiro, attorney for the Association, recently pointed out to Judge Gary and other financiers who have recently become interested in the rapid growth of the co-operative associations, they can never become dangerous monopolies, because the outside demand for the produce of thousands of farmers would inevitably break down their ability to hold over long periods of time.

No less remarkable than the leadership of the farmer members of the Association who are its directors, is the loyalty

of the thousands whom they lead and those thousands who have already marketed some 25,000,000 pounds of tobacco, accepting in good faith the partial cash advances made upon delivery of their product. Within ten days of the first deliveries successful sales were made to the big companies and from present indications the demand for the well graded lots

of tobacco offered in large quantities by the Association will continue to bring prices that will insure the tobacco growers of Virginia and the Carolinas such fair reward for their labors as will bring better homes, better schools, better roads and a richer, fuller country life to tobacco growers of the South.

Canton Co. Terminals and Pennsylvania Railroad Grain Elevator, Baltimore.



The holdings of the Canton Company within the harbor of Baltimore comprise 1500 acres with a water frontage of one mile served by the Canton Railroad connecting to the three trunk lines entering the city. Piers of various types and sizes capable of berthing 24 ocean-going vessels simultaneously and warehouses with an area exceeding 1,000,000 feet are provided. Future developments call for four solid-filled piers 1000 feet long and 800 feet wide with two piers 1200 feet long and 250 feet wide projecting from each, with slips 300 feet wide between them. These improvements will give additional berthing space for 66 vessels, ground floor area of 2,200,000 square feet, and track facilities for 11,500 additional cars.

In this rapidly developing section are many big industrial plants manufacturing a variety of products distributed throughout the world. Here are located the Baltimore Copper Smelting & Rolling Co., the largest copper smelting plant in the world, and the Standard Oil Company's refinery, one of the largest in the United States.

Upon the completion of additions and improvements to the Pennsylvania Railroad elevator now under way, its storage capacity will total 4,250,000 bushels, making it one of the largest on the Atlantic Seaboard.

\$400,000 Apartment House for Atlanta.

Atlanta, Ga., Sept. 19—[Special.]—The Real Estate Investment Corporation will erect a \$400,000 apartment building on the southwest corner of Peachtree and Sixth streets. Construction will begin at once. The new structure will be of Georgian style architecture, and have fifty suites of from one to four rooms each. It will be of reinforced concrete and steel with red brick exterior finish and lime stone base, and trim. Contract has been awarded to Adair & Senter, and architects are Hentz & Adler of Atlanta.

Argentina Has Big Wheat Crop.

The final estimate of the Argentine government for the 1921-22 wheat harvest is 180,640,700 bushels, according to the Department of Agriculture. This is an increase over the preliminary estimate of more than 25,000,000 bushels. Wheat production in 1920-21 was officially estimated at 169,756,000 bushels, of approximately 10,000,000 bushels less than the preceding harvest.

Exposition of Power and Mechanical Engineering.

The National Exposition of Power and Mechanical Engineering will be held at the Grand Central Palace, New York City, December 7 to 13, immediately following the annual meetings of the American Society of Mechanical Engineers and the American Society of Refrigerating Engineers.

Irving E. Moulthrop, of the Edison Electric Illuminating Co. of Boston, heads the Advisory Committee. The engineering phases involved in the economical uses of fuel and the effectual general utilization of power will be discussed. The program has been so arranged that those interested especially in fuels and power can attend the technical sessions of the Society of Mechanical Engineers.

Two hospital buildings will be erected at Tuscaloosa, Ala., at a cost of \$75,000 each. The architect is D. O. Whilden of Birmingham. The new structures are being built for the Bryce Hospital and proposals will be opened about October 1.

THE IRON AND STEEL SITUATION

Steel Product Delivery Easier at Pittsburgh.

Pittsburgh, Pa., Sept. 30—[Special.]—Deliveries of steel products have been growing quite easy. A large independent mill, which was holding to \$2.15 on merchant bars in attractive orders and \$2.25 in less attractive orders, is now quoting \$2.00. Sheet mills that were able to make shipment in three weeks and were obtaining \$3.75 have come down to \$3.60. Later deliveries, in four to six weeks, still command \$3.50, but it looks as if mills making that price will recede soon to \$3.35, which is the Steel Corporation price. There are other cases, all in the direction of delivery premiums decreasing or disappearing entirely, on account of mills being able to make quicker shipment.

The American Steel & Wire Company (Steel Corporation) has advanced its prices on wire products \$2 a ton. The independents, who had been \$3 a ton above the former Steel Corporation prices, have now cut off the extra dollar, so that corporation and independent are on the same level, at \$2.45 for plain wire, \$2.70 for wire nails, \$2.20 for cement coated nails and \$3.35 for galvanized barb wire.

Operation of steel mills, on an average, make the following comparison: January, 44 per cent of capacity; June, 70 to 75 per cent, the high rate of the year; August 31, 50 per cent, the low point resulting from the coal strike; present, 65 to 70 per cent.

As the low rate obtained for only a very short time and the present rate does not represent a complete recovery to the June rate, the ease with which delivery can now be made is hardly attributable simply to the little extra steel that has been made in the past month, making it probable that there is another factor, a disposition on the part of buyers to liquidate part of the stocks previously laid in as insurance against possible curtailment of deliveries on account of the coal strike. Such liquidation, however, is not likely to prove extensive, for buyers now have another reason to carry stocks, the danger of there being serious transportation trouble later in the year, particularly when the inclement weather comes.

There is much talk now of "car shortage" in connection with the shipment of steel, but the car shortage is a bad sign as to the future rather than a serious impediment at present. No mill has curtailed operations on account of inability to ship product, and relatively little steel has piled up at the mills on account of car shortage. A few mills requiring box cars may have two or three weeks of production piled, particularly sheet mills, but mills using open top cars have very little accumulation, perhaps in some cases two or three days of production.

Finished steel prices are now quotable as follows: the difference in price when there is a range being a matter of time of delivery: Bars, 2.00c to 2.15c; shapes, 2.00c plates, 2.00c to 2.25c; nails, 2.70c; plain wire, 2.45c; tin plate, 4.75c; black sheets, 3.35c to 3.60c; galvanized sheets, 4.35c to 4.60c; automobile sheets, 4.70 to 5.25c.

Appearance of the Cambria Steel Company as a seller of pig iron has somewhat relieved the bad situation existing in recent weeks, of offerings being very limited at prices asked and buyers apparently unable to pay the prices asked. Cambria has sold 2000 tons of basic iron to a West Virginia sheet interest at \$30, Johnstown, and 1000 tons of Bessemer to a Pittsburgh consumer at \$33.50, Johnstown, while it is understood to be offering malleable at \$32 and foundry at \$32.50. Freight Johnstown to Pittsburgh and valleys to Pittsburgh is the same, \$1.77. Cambria has started another blast furnace and is now operating six, evidently more than enough to cover its requirements in steel making.

Merchant furnaces can only very occasionally pick up enough Connellsville coke to justify an operation. The mar-

ket is about 50 cents higher this week, at \$11.50 to \$12.50 for furnace and \$13.50 to \$14.50 for foundry. The limiting factor in production is car supply. There are thousands of "strikers" left but there is no employment for additional men.

Prospects are that there will be an easy tone in the steel market until buyers become ready to negotiate for next year's deliveries.

The rail mills have succeeded well in their effort to accumulate a tonnage for winter rolling. Estimates of the tonnage booked at the \$40 price, which disappears after to-day in favor of a \$43 price, range between 1,000,000 and 1,400,000 tons. Average requirements for replacement purposes run something like 1,500,000 tons a year, but probably more rather than less than this amount.

Production Maintained at Birmingham—Big Sales Slightly Off.

Birmingham, Ala., Oct. 2—[Special.]—While big business has been tapering off some, furnace interests in the Birmingham district are still selling pig iron; in the main spot iron is getting the top notch price, \$28.50 per ton, delivery during the last quarter of the year. Two companies are practically out of the market now and another is selling cautiously. The production is greater than it has been in two years and had it not been for the accident at No. 5 blast furnace of the Tennessee Coal, Iron & Railroad Company at Ensley, the repair work having started already, the increase for October would be considerable. The prospects are that there will be a handsome tonnage anyway above the figures of August and September.

Small lot sales have continued steadily. Effort is made to bring about better transportation service, with a little success. The two railroads which made settlement with the shop men are rapidly turning out power and equipment at the shops but it will be some time before there is any approach to caring for the bulk of the equipment needing attention. The other railroads which are not dealing with the striking shop men are showing improvement in their service right along and there is a little better movement noted at this time. Surplus stock of pig iron will be around 100,000 tons when the collaboration is completed this week, an increase of about 25,000 tons over what it was on September 1. Inquiries are numerous and indications point to much iron being needed the coming year. Another sale of 10,000 tons is reported but verification is difficult.

Consensus of opinion among furnace interests is that there will be a healthy demand for the product during the coming year. In the sounding out of probable prices, \$30 and \$32 is given as the average, No. 2 foundry, despite the fact that production in the north and west is steadily picking up and needs are being satisfied with more promptness than for some time. J. W. Porter, vice-president and general sales manager of The Alabama Company, which has been selling its make ahead for the past year and longer, in an interview expressed the opinion that the pig iron market activity in this district would continue for at least 18 months longer, well up to the next presidential campaign. He says that a study of the situation shows a minimum of surplus iron, that approaching conditions, including transportation facilities, promise to operate against this or that section; where ore will be plentiful there will be a shortage of fuel and other material and where fuel and raw material will be plentiful there will be a shortage of ore so that the iron make will not be so wholesome as some would have it.

The cast iron pipe industry reports several lettings received

rece
whic
entir
plan
coin
radi
cent
tons
shor
eral
larg
just
Co
by r
arou
rech
look
ther
Ther
ther
the
The
man
bein
Th
agai
for
per
bee-l
coal
noti
work
will
Th
tract
kind
the
than
appe
quots
Qu
No.
\$27.50
to \$25
3.25 t
cent
to \$35
Old
Old
Old
Heavy
No. 1
No. 1
Stove
Old
Old
Mach
Cast
Cast
Ter
samp
the
Carn
samp
of iron
Birm
that
coope
The
C. G
doubl
3 1/2 n

recently. These plants have orders in hand or in sight which will work for months to come, perhaps through the entire winter on a splendid schedule. The sanitary pipe plants are also working well and the melting of pig iron is considerable. High pressure pipe prices are advancing. The radiator plant at North Birmingham is working to 100 per cent and more, with the average melt each day around 100 tons. It is necessary for a night shift to be employed. Car shortage is hampering the shipments from this industry, several car loads of radiators and boilers waiting cars while a large quantity of less than car lot stock is ready for movement just as quickly as the railroads can furnish facilities.

Coal production in Alabama shows slight falling-off still by reason of the railroad car shortage, the production being around 350,000 to 365,000 tons a week. The maximum reached was 400,000 tons. Smaller producers of coal are looking for more business. These mines thrive mostly when there is a severe shortage of fuel and the prices ascend. There is confidence expressed that in the very near future there will be another impetus noted in the coal market and the demand will take all the coal that can be furnished. The railroads of this district are unable to supply all the demands of the producers at present. Local plants are not being interfered with by reason of any shortage, however.

The coke demand is so active that spot coke is selling again, as high as \$10 and \$12 being paid by some consumers for foundry coke. The transportation service is about 60 per cent of needs. All plants are in operation except a few bee-hive ovens which will hardly be put in motion until the coal demand eases up some. The larger surplus piles of coke noticed in this district six or eight months ago have been worked off well. There is no apprehension that surplus coke will affect the market any as the needs are voluminous.

The scrap iron and steel market is very feverish and contracts are being taken on by dealers for a quantity of all kinds of scrap. Heavy melting steel is moving a little though the larger consumer of the product insists on a lower price than the dealers are holding it for. The interests, however, appears to be getting all the steel needed right along. All quotations have taken on another advance and are firm.

Quotations for pig iron and iron and steel scrap follows:

PIG IRON

No. 2 foundry, 1.75 to 2.25 per cent silicon, f. o. b. furnaces, \$27.50 to \$28.50; No. 1 foundry, 2.25 to 2.75 per cent silicon, \$28.00 to \$29.00; iron of 2.75 to 3.25 per cent silicon, \$28.50 to \$29.50; iron of 3.25 to 3.75 per cent silicon, \$29.00 to \$30.00; iron of 3.75 to 4.25 per cent silicon, \$29.50 to \$30.50; charcoal iron, f. o. b. furnaces, \$34.00 to \$35.00.

OLD MATERIAL

Old steel axles.....	\$23.00 to \$25.00
Old iron axles.....	23.50 to 26.00
Old steel rails.....	16.00 to 17.00
Heavy melting steel.....	15.00 to 20.00
No. 1 R. R. wrought.....	20.00 to 22.00
No. 1 cast.....	20.00 to 22.00
Stove plate.....	19.00 to 21.00
Old car wheels.....	19.00 to 20.00
Old tramcar wheels.....	22.00 to 23.00
Machine shop turnings.....	9.00 to 10.00
Cast iron borings.....	12.00 to 13.00
Cast iron borings, (Chem).....	15.00 to 16.00

Crushing Strength of Iron Ores.

Tests to determine the crushing strength of numerous samples of iron ore obtained by the Bureau of Mines in the Birmingham, Alabama district are to be made at the Carnegie Institute of Technology at Pittsburgh, Pa. The samples to be tested are in the form of cubes cut from masses of iron ore obtained from a number of the larger mines in the Birmingham district. Work on a magnometric survey of that district is being conducted by the Bureau of Mines in cooperation with the Coast and Geodetic Survey.

Double Track Contract Let.

The Atlantic Coast Line has awarded a contract to the C. G. Kershaw Contracting Co., of Birmingham, Ala., to double track the line between Jesup and Doctortown, Ga., 3½ miles.

RAILROADS

Tremendous Freight Movement on the Railroads.

Freight loadings on the railroads have increased to such a degree that there is no longer a surplus of cars and while this change of conditions as to the car supply is seasonable, for it always occurs in the fall when the heavy movement of crops and fuel begins, it is more than usually impressive this autumn because of the coal strike which held back large amounts of fuel from shipment during the summer and also because of the railroad strike which prevented the prompt repair of cars out of order.

On September 15, according to reports compiled by the car service division of the American Railway Association, the railroads had requests from shippers for very nearly 86,000 freight cars which could not be complied with just at that time, this being 18,000 cars more than were asked for on September 8. In the same week there was a decrease from 43,100 to 4400 in the number of surplus cars scattered throughout the country. Box cars are most in demand and unfilled orders for them on September 15 were more than 46,000, an increase of more than 7000 in the demand in one week. Coal shippers asked for 26,000 coal cars, an increase of more than 7400 in the week, while there were only 17,614 surplus coal cars in good condition to draw from to supply their requirements, this latter figure being a decrease of more than 17,000 in the week. Demands for other classes of equipment also increased proportionately.

At the beginning of April last the number of surplus freight cars was more than 507,000 and the decrease has been steady since then.

Because of lack of a sufficient number of coal cars to speed the transportation of coal as rapidly as desired so that consumers may have adequate supplies for the beginning of winter the National Coal Association has taken steps to solve the problem by conferring with Conrad E. Spens, the Federal Fuel Distributor, at Washington, it being alleged that transportation is not keeping up with the capacity of the mines that have been reopened. In some of the soft coal fields, it is stated, the supply of cars is only enough to keep the mines going two or three days a week. A committee of operators has been appointed with J. C. Brydon, of Baltimore, chairman, to deal with the situation. It is explained that while in other years in times of stress the railroads have been able to carry 13,000,000 tons of bituminous coal a week, they are now carrying less than 10,000,000 tons, although the mines are in shape to produce more than 13,000,000 tons weekly. An advisory committee has also been selected by the Federal Fuel Distributor from among a number of railroad executives for counsel as to the transportation situation, the list being headed by President Daniel Willard, of the Baltimore & Ohio Railroad, as chairman. Another committee representing industrial establishments throughout the country has also been named to confine their coal orders to immediate needs.

As to coal going to ports on Lake Erie it is stated that the railroads are now transporting to such points more than 1,000,000 tons a week that being the amount fixed as proper to insure an adequate supply in the northwest for the winter. (As a matter of fact the shipments are averaging more than 1,100,000 tons a week.) During the four days September 21-24 an average of 4081 cars were dumped daily at Lake Erie ports, this being the greatest record made in the history of the trade there.

Traffic officers of the Pennsylvania Railroad, according to a report from Philadelphia, where the main offices are situated, estimate that during the last three months of this year iron and steel shipments will be from 50 to 70 per cent

greater in volume, building materials from 20 to 30 per cent more, and other freight from 20 to 40 per cent greater than at present.

The total of cars loaded with revenue freight on all the railroads during the week ended September 16 was more than 945,000 or 113,000 cars more than during the previous week, which included the Labor Day holiday, or 14,321 cars more than the week of September 2 which was a full working week. The total of more than 945,000 cars loaded was also greater than the loadings for any other week since October 22 of last year.

Reports for the week ended September 23 covering coal loadings, (all freight loadings not being completed,) show that there were 212,110 cars loaded with coal during the week an increase of nearly 17,000 carloads as compared with the previous week. On the basis of these loadings coal production during the week approximated 11,500,000 tons.

Interurban Line Dispute Settled.

An agreement has been reached by the Texas & Interurban Railway Co. and the municipal authorities of Dallas, Texas, for the latter to accept electrification of the line of the Missouri, Kansas & Texas Railway from Dallas to Denton, Tex., 30 miles as in part compliance with the terms of the franchise granted five years ago to C. W. Hobson and associates under which they were to build two interurban railways, (each not less than 30 miles long and entering Dallas,) by September 15, 1922. They are about completing a line from Dallas to Terrell, Tex., 35 miles, but they were ready to forfeit a bond of \$350,000 which they had given rather than at present undertake construction of an entirely new line from Dallas to Denton, pointing out that electrification of the Missouri, Kansas & Texas Railway between the two cities would afford electric railway accommodation and that at a later date an interurban line could be constructed from Denton on to Gainesville, Tex., 29 miles farther, opening up an entirely new trade territory for Dallas merchants.

The Texas & Interurban Railway Co. is a subsidiary of the Texas Electric Railway Co. which Mr. Hobson and his associates represent. They have, it is stated, obtained a fifty year franchise for the use of the Missouri, Kansas & Texas Railway tracks from Dallas to Denton and the work of electrification is estimated to cost about \$470,000. To have built an entirely new electric railway, it is said, would have cost \$1,375,000.

Recent Railroad Financing.

Seaboard Air Line has applied to the Interstate Commerce Commission for approval of an issue of \$2,560,000 of 5½ per cent equipment trust certificates to cover its announced equipment contracts.

Georgia Southern & Florida Railway will receive from the Government \$366,737 in final settlement of its claim for the guaranty period, according to a certificate issued by the Interstate Commerce Commission to the Treasury Department.

At the annual meeting of stockholders of the Chesapeake & Ohio Railway last week in Richmond, the issue of \$30,000,000 of preferred stock was unanimously approved. The directors were authorized to dispose of \$12,558,500 of the stock immediately, this to be called Series A. The proceeds will be used for the improvements recently announced. The new stock is convertible into common stock if desired and present holders of common stock may subscribe to the preferred shares.

Mobile & Ohio Railroad will receive from the Government \$605,735 in final settlement of its claims for the guaranty period, this making a total paid of \$1,930,735.

Tennessee, Alabama & Georgia Railway has been authorized to issue \$200,000 of common and \$400,000 of preferred stock. An issue of \$2,000,000 or more of bonds is also contemplated to pay for a projected extension.

New Equipment.

Chesapeake & Ohio Railway has ordered 50 freight locomotives of the Mallet type from the American Locomotive Co. to cost approximately \$2,500,000.

Norfolk & Western Railway has ordered 12 mountain type locomotives from the Baldwin Locomotive Works, this being in addition to a recent order for 30 Mallet locomotives given to the American Locomotive Co.

St. Louis-San Francisco Railroad has ordered 1200 box cars from the American Car & Foundry Co., 1000 hopper cars from the Chickasaw Shipbuilding Co., 500 hopper cars from the Pullman Co., and 300 stock cars from the Mount Vernon Car & Manufacturing Co.

Atlantic Coast Line has ordered 25 Pacific type locomotives from the Baldwin Works.

Chicago, Rock Island & Pacific Railway is reported in the market for much equipment, including 30 Mikado and 10 Mountain type locomotives, 500 box cars, 500 coal cars, 500 automobile cars, 250 flat cars, 250 ballast cars, 250 refrigerator cars and 250 stock cars, besides 50 all-steel passenger cars for suburban service.

Seaboard Air Line, it is reported, will purchase 15 Pacific type locomotives.

Santa Fe System is noted in the market for 50 caboose cars. A new type of milk car has been demonstrated to city officials at New York. It does away with milk cans and with icing, by having nine containers, each of 900 gallons capacity, the milk being surrounded by a vacuum chamber which maintains the temperature of the milk as at the time it was loaded.

Unfilled orders at the Baldwin Locomotive Works, it is stated, now approximate \$37,000,000 in value and additional hands are being taken on. There are 622 locomotives to be built and 227 others in the shops for repairs.

Gasoline Motors for a Maryland Line.

Two gasoline motor cars have been ordered by the Maryland & Pennsylvania Railroad Co. from the Russell Company, of Kenosha, Wisconsin, and are to be used to take the place of steam passenger trains between Baltimore and Belair, Md., 26 miles, and between York and Delta, Pa., 34 miles. They are expected to be placed in service about October 15. Each will have a trailer car attached. The purchase of the new equipment is to be partly financed by an issue of \$38,000 of 7 per cent equipment trust certificates.

Each of the cars will have a six cylinder, 100 horse power gasoline engine in the forward compartment, next will come a baggage compartment and then a passenger compartment seating 40 persons. Each of the trailers can carry 30 passengers. The motors have four speeds forward and two speeds reverse, and they operate with a disc clutch.

Heavy grades on this line have constituted a serious problem for builders of motor cars, several of which were tried out on it within several years, but a test made recently with a car resembling those now being built by the Russell Company and which was constructed for a line in the South, was so satisfactory as to enable the company to see its way to building a car which would be quite suited to operating conditions on the Maryland & Pennsylvania. Gasoline operation will be less expensive than steam.

In this connection it is interesting to note the development of a high speed type, light weight interurban railway car at the Cleveland plant of the J. G. Brill Company for the Western Ohio Railway Co. One of these cars weighs only 32,462 pounds complete, but it maintains a schedule speed of 45 miles an hour on the line from Findlay via Lima to Piqua, Ohio, 113 miles. Power consumption is said to be reduced one half as compared with conditions when heavy cars were run.

Baltimore & Ohio Earnings for Eight Months.

While the statement of the Baltimore & Ohio Railroad Co. for August showed a deficit of \$648,190 in net railway operating income as compared with the same month of last year, this drop being mainly due to the large decrease in freight in consequence of the coal strike, the totals for the first eight months of the current year are very satisfactory, the net railway operating income showing an increase of very nearly \$3,000,000 or almost 25 per cent as compared with the corresponding period of last year.

Freight revenues during August were \$10,501,265, a decrease of \$3,396,998 as compared with August of last year and passenger revenues were \$2,417,601, a decrease of \$401,872. All railway operating revenues, including the foregoing, were \$14,104,234, a decrease of \$3,829,204; railway operating expenses, \$13,590,644; decrease, \$901,392; net revenue from railway operations, \$513,590; decrease, \$2,927,812; net railway operating income, (deficit) \$648,190; decrease, \$3,206,605.

For the first eight months of the calendar year to August 31 the railway operating revenues were \$126,727,416; decrease, as compared with the corresponding period of last year, \$3,974,746; railway operating expenses, \$102,835,336; decrease, \$8,693,938; net revenue from railway operations, \$23,892,080; increase, \$4,719,192; net railway operating income, \$15,157,172, increase, \$2,941,511.

Automobiles as Competitors of the Railroads.

In opposing before the Interstate Commerce Commission last week an appeal of the traveling salesmen that the railroads be required to issue \$100 worth of scrip coupon tickets at a discount of 33⅓ per cent, C. A. Fox, chairman of the Central Passenger Association, declared that the competition of automobiles and automobiles is now so great that it is not believed that the suggested reduction of fare would restore to the railroads any considerable amount of the traffic now carried by the automobiles or by private machines. Furthermore, he said that automobiles appeared upon new highways between points of any prominence almost as soon as the improved roads are completed and that they deprive the railroads of a very large percentage of local business, regardless of fares, which are sometimes lower and sometimes higher than those charged on the rail lines. He expected this sort of competition to increase as more and more good roads are built and he does not think reduced railroad fares would in any way benefit the companies. Mr. Fox and other representatives of the railroads also opposed the proposition that interchangeable mileage books be issued.

Railroads Urge Better Packing of Freight.

To reduce the volume of claims for freight damage the American Railway Association is conducting a campaign among shippers to extend the use of steel straps or wire binding on package freight in wooden boxes. It is remarked that for the last four years losses and damage to freight averaged about \$100,000,000 a year and that while lower prices, less traffic and efforts for better service have substantially reduced such claims there is much yet to be done for prevention. If all freight was well packed in proper containers and adequately secured against theft and damage the claim bill would be cut down several millions of dollars annually. The committee on freight claim prevention, Lewis Pilcher, Secretary, has its office at 431 South Dearborn St., Chicago, Ill.

A Mexican Extension and Electrification.

Orizaba, Mexico, Sept. 21—[Special.]—At the recent annual meeting of the Vera Cruz Railway Company, in London, England, provision was made for electrifying the thirty miles of mountain division of the road between Orizaba and Esperanza, Vincent W. Yorke of London, chair-

man of the board, making the announcement. Electric power will be obtained from either the hydro-electric plant of Lord Cowdray and associates, near Orizaba, or an entirely separate plant to be built by the railroad.

Mr. Yorke further said that the action of the company in obtaining a concession for a proposed railroad to run from a point on its Mexico City-Vera Cruz main line to Tampico was ratified and that financial provision for the early construction of this new line had been made. It will cost approximately \$8,000,000 in United States money.

Both of these projects are to be carried out soon, it is stated, irrespective of whether or not the administration of President Alvaro Obregon is recognized by England.

Pennsylvania Railroad Revenues Very Large.

The total revenues of the Pennsylvania Railroad System for the eight months ended August 31 were more than \$438,000,000, operating expenses more than \$355,000,000, and net revenues about \$83,000,000 for the period. Operating revenues for August were more than \$63,000,000, an increase of nearly \$5,000,000 as compared with July, operating expenses, over \$51,500,000 and net operating income something more than \$7,000,000, an increase of nearly \$340,000. The total revenues for the month were greater than for any other month since November 1920.

40,000 Tons of Rail for Southern Railway.

Forty thousand tons of rails, mostly of one hundred pound section, enough to lay two hundred and fifty miles of track, have been ordered by the Southern Railway System for delivery during the first six months of 1923. The contract is placed with the Tennessee Coal, Iron and Railroad Company and will be rolled at its Ensley, Ala., plant. One hundred pound rail is now being laid between Washington and Manassas, Va., 33 miles.

Railroad Notes.

The annual convention of the American Electric Railway Association is being held this week on the Municipal Pier at Chicago, Ill.

The receiver's sale of the Missouri, Kansas & Texas Railway properties at Colbert, Okla., and Denison, Tex., which was to have taken place on September 20 and 21, was postponed until October 4 and 5.

European Type Cars Sold Abroad.

The United States Government has sold 7504 railroad cars of European types to the Republic of Poland for \$4,802,560, the sum of \$1,200,640 to be paid in cash, while six year 5 per cent notes will be given for the remainder. The cars, which have been stored at New York and at Norfolk, were built here during the war for the use of American troops in France.

Efforts to Increase Coffee Imports Through Galveston.

Galveston, Texas, Sept. 23—[Special.]—Plans are on foot to make Galveston an important coffee importing port and to establish a spot coffee market here. Coffee roasters through Texas and the middle West have sent telegrams to the Shipping Board, urging the establishment of a direct steamship line between South American ports and Galveston for the purpose, especially, of handling coffee cargoes. I. D. McMaster, secretary of the Galveston Association, who is actively promoting the matter said that coffee roasters are giving their hearty support to the plans.

"The Port of Mobile" is a small but exceedingly comprehensive pamphlet issued by the Mobile Chamber of Commerce and containing a statistical abstract of the port based on information from authentic and reliable sources. Among other data it carries a list of port charges, which it is said, are very low; and there is also a list of port facilities, etc.

GOOD ROADS AND STREETS

Plans Approved for Mississippi Link of Old Spanish Trail.

Pascagoula, Miss., Sept. 20.

Editor Manufacturers Record:

Information has just been received here that the United States Highway Commissioners and the State Highway Commissioners have approved plans and specifications for the first link of the Old Spanish Trail leading from the Alabama state line to the East Pascagoula River, and that the meeting of the Board of Supervisors will be on Monday, October 7. Advertising for bids on this highway will be published and it is expected that active work will commence before the first of January.

This link of the OST runs through Road Districts 2 and 3 of Jackson County which have issued and sold \$197,000, of road bonds, the Federal Aid supplying an equal amount, making \$384,000 to be expended on this road.

District No. 4 in which lies the town of Ocean Springs, also issued and sold \$180,000 of road bonds but the plans and specifications of this link were rejected, as they call for a road crossing the Louisville & Nashville Railroad to the south and then again to the north, so as to make a detour around Biloxi Bay. The Commissioners agreed to approve the plans provided the road runs north of the Louisville & Nashville Railroad making the route three miles shorter and eliminating two grade crossings. As the OST has been adopted as a military highway no plans or specifications will be approved that call for bends and grade crossings that can be eliminated.

CHARLES E. CHIDSEY.

\$600,000 in Contracts for South Carolina Roads.

Sumter, S. C., Sept. 21.—[Special.]—Contracts were awarded here last week for five sections of highway at a total cost of \$600,741. The successful bidders, the kind of roads and the sections covered by the awards are as follows:

Manning road: 6.1 miles, Robert G. Lassiter & Co., Raleigh, N. C., type "B," asphaltic concrete, \$152,839.62.

Camden road: 4.2 miles Robert G. Lassiter & Co., Raleigh, N. C., type "B," asphaltic concrete, \$102,770.11.

Bishopville road, 4.3 miles, C. D. Rigsbee, Durham, N. C., concrete, \$119,803.70.

Mayesville road, 4.3 miles C. D. Rigsbee, Durham, N. C., type, "A," asphaltic concrete, \$117,339.05.

Pinewood road: 4.3 miles, Powell Paving & Construction Co., Columbia, type "B," asphaltic concrete, \$107,998.70.

Notes on Good Roads Construction.

Warren County Construction Company, Nashville, Tenn., are contractors for a stretch of bituminous macadam penetration road of 5.75 miles on State Highway No. 1 between the Cannon County line and McMinnville, at a cost of \$130,000.

Contract has been awarded to Purvis & Lowry of Ft. Worth, Tex., at \$151,575 for constructing the Pleasant Glad Road, one of the highways to be built under the Tarrant County bond issue program.

The Womack Construction Company of Sherman, Tex., has been awarded contract at about \$190,000 for highway No. 7, the road running through Coleman and Santa Anna, Tex. to the Brown County line, a distance of nearly eighteen miles. The Federal Government is to stand one half of the expense of construction.

Guilford County Completes 123 Miles of Highways.

Greensboro, N. C., Sept. 30.—[Special.]—Twenty-five road projects aggregating 123 miles have been completed by the Guilford County Highway Commission since 1921, according to W. C. Boren, chairman. In addition to the roads completed a number of projects are now under way and additional projects will be let to contract in the near future. Due to the operation of the rock quarry in the northern section of the county work has not stopped because of difficulties affecting shipments as a result of the strike. The quarry was purchased in 1920 at a cost of \$80,000.

Link Begun Between Baltimore and Southern Maryland.

The first work on the highway to link Baltimore and southern Maryland by direct route, was started last week. G. B. Mullan, of Washington, has the contract for a stretch of four miles beginning at Benfield, in Anne Arundel County which will be the northern terminus of the new route, and extending along the road to Upper Marlboro. Other contracts will be awarded in the near future, so that work can proceed simultaneously on a number of different sections.

\$3,500,000 on Tennessee Highways This Year.

Nashville, Tenn., Oct. 2.—[Special.]—The State Highway Commission has issued a report on expenditures for highways since the first of the current year which shows a total of about \$3,500,000 from January 1 to September 1. State and county maintenance work cost \$480,000, and the construction of new projects had an aggregate valuation of \$2,850,000. Surveys involve the expenditure of \$50,000 while the supervision of construction, preparation of plans, etc., cost \$95,000.

Contract Let at \$212,000 for Gravel Road.

Pine Bluff, Ark., Sept. 23.—[Special.]—Contract has been awarded to J. A. Perdue & Company for construction of a gravel road between Clarendon and Helena to cost approximately \$212,000. It will be 18½ miles in length and serve as the connecting link between Phillips and Monroe Counties, passing through Blackton and Marvel. Work will begin October 1 and be finished in July of next year.

Oklahoma Has \$3,000,000 Bridge Program.

Oklahoma City, Okla., Sept. 30.—[Special.]—This state's program for construction of bridges involves the expenditure of more than \$3,000,000. Since January 1919 to September 1 a total of 350 bridges have been let to contract representing 14,722 lineal feet. Of this number 60 bridges were of the so called major type constructed with state and federal aid funds, and averaging 395 feet per bridge.

Ten Mile Road Contract Let.

Brunswick, Ga., Sept. 30.—[Special.]—The Glynn County Commissioners have awarded contract to T. P. Wright, contractor, of Atlanta, Ga., for the construction of a road between the city limits and the Darien bridge, a distance of ten miles at a cost of \$125,000. The contract provides for completion of the work in 200 working days.

Nineteen Miles of Highway to Cost \$200,000.

Charleston, Miss., Sept. 30.—[Special.]—Contract for the construction of a gravel highway, asphalt surface, from Philip to Cowart, a distance of 19 miles has been awarded to the S. K. Jones Construction Company, of Memphis. The highway will cost approximately \$200,000. Bonds for the work were sold about two years ago.

LUMBER AND BUILDING MATERIALS

Lumber Movement Curtailed by Car Shortage—First Two Weeks of September Showed only 30 Per Cent Supply Furnished.

New Orleans, La., Sept. 30—[Special.]—That the railroad car shortage is seriously affecting the South's lumber industry by greatly curtailing the movement of lumber to market centers all over the country, is disclosed in a statement issued here by the Southern Pine Association, setting forth the facts, which will be presented to the Car Service officials in Washington.

Although there usually is a stringency in the car supply for Southern pine mills at this season yet, the statement asserts, the first two weeks of September show a situation much more aggravated than any existing during the same period in the past eight years, the mills east and west of the Mississippi having received cars sufficient for only 30 per cent of their requirements. Mills east of the river fared worse than those west.

As a result of a questionnaire sent by the Association to ascertain the extent to which the railroads were supplying the demands for cars during the first half of September, replies from 58 mills showed that during the period 8790 cars were ordered and only 2612 cars received, or 30 per cent of requirements. In order to show that the mills were not ordering more cars than needed, subscriber mills were asked to report their track facilities and daily loading capacity. Figures from 39 of these mills which reported showed they ordered 574 cars and received 1438 cars; that they had track facilities for 13 days for 9503 cars and their normal loading capacity for thirteen days was 4953 cars. The statement says:

"These figures showed the mills ordered many less cars than their track facilities and only slightly more than their normal loading capacity, which could be increased if transportation equipment were provided. Of the 58 mills reporting, those east of the Mississippi ordered 4958 cars, and received 1132 cars or 22.8 per cent of requirements, and those west of the river ordered 3832 cars and received 1480 cars, or 38.6 per cent of requirements.

"By states the situation is shown as follows:

State.	Cars Ordered.	Received.	Per-centage.
Alabama	1162	236	20.3
Arkansas	570	156	29.1
Louisiana	2073	816	39.3
Mississippi	3564	833	23.4
Texas	1421	571	40.2

"Analysis of cars ordered and received, does not fully tell the story. The effects of car shortage are plainly indicated in comparison of the statistics of shipments, production, orders and stocks, as published by the Southern Pine Association. Average per mill shipments for the first two weeks of September were 872,680 feet. This compares with the first two weeks of September of other years as follows: 1915—1,299,107 feet; 1916—1,171,342; 1917—1,348,801; 1918—918,222; 1919—904,201; 1920—933,572; 1921—1,149,209.

"Considering these shipment figures in connection with figures on production, orders on hand and stocks, it is plainly shown that the large reduction in shipments is strictly a matter of car supply. The first two weeks of September the mills produced 35 per cent more lumber than they were able to load. The relation of shipments to normal production of these mills is 63.6 per cent, or less ratio than in any other year for the last seven years, the average percentage relationship of which is 80.7. The same condition applies in comparing present shipments with actual production for the last seven years. Present percentage of actual shipments to actual production is 73.9. This is less than any other year for the last seven years, for which the average relationship is 98.4 per cent.

"That the mills were unable to ship because of lack of cars is indicated by the fact that their order files contain sufficient business to continue shipments for 6.3 weeks. The average stocks on hand at the mills were sufficient to continue shipments for 16 weeks."

Orders Increase for Southern Pine.

New Orleans, La., Sept. 29—[Special.]—The average unfilled orders reported by subscribing mills of the Southern Pine Association for the week ended September 22 showed a decided increase over the two preceding weeks. Orders received by 133 mills totaled 2770 cars containing 60,909,530 feet, giving an average per mill of 457,966. Shipments for the week amounted to 2689 cars containing 59,128,421 feet, making the average 444,575 feet per mill. Production declined slightly to 76,004,430 feet, the average being 571,462 feet.

At the end of the week the total unfilled cars on order numbered 17,541. The shipments for the week were 22.20 per cent below production, while orders were 19.86 per cent below production. Orders were 3.01 per cent above shipments. The increase in "orders on hand" during the week was .46 per cent.

The summary report for the week was as follows:—

	Cars.	Feet.
Orders on hand beginning of week.....	17,460	383,927,940
Orders received during week.....	2,770	60,909,530
Total	20,230	444,837,470
Shipments during week.....	2,689	59,128,421
Orders on hand end of week.....	17,541	385,709,049

Pine Shipments Above Production.

New Orleans, La., Sept. 30—[Special.]—During the first eight months of 1922 shipments of lumber from Southern Pine Association mills were 101.36 per cent of production, as compared with shipments for the corresponding period of 1920 which were 88.27 per cent of production. On August 31 the stocks on hand were 112,310,471 feet less than on the same date 1921. And the production during the last month was 47,900,000 feet more than the cut in August, 1921. Shipments during the eight months of the year were 15,686,000 feet, or 4.34 per cent greater than the shipments for the same month last year.

During August shipments were 94.06 per cent of production, and the demand was 105.63 per cent. An increase of stocks on hand amounting to 2.58 per cent was reported.

To Erect Mill for Hardwood Lumber.

According to Frank A. Pierson, Secretary of the Chamber of Commerce, ground has been broken at Columbia, S. C., by Hoffman Brothers Company of Fort Wayne, Ind., for the erection of a large mill for the production of hardwood lumber for use in the manufacture of furniture and musical instruments; about 100 men will be employed. The market for raw material from the timber sections of the state will be enlarged. The officers of the company include F. H. Hoffman, pres.; C. A. Walker, vice president; Charles L. Smith, secretary. Mr. Hoffman will be general manager of the Columbia plant assisted by Mr. Smith.

Hardwood Orders Best in Two Years.

Chattanooga, Tenn. Sept. 30—[Special.]—According to a survey just completed orders were received by hardwood lumber firms here last week in greater numbers than at any time since 1920. Hardwood consumers in all parts of the country are said to be clamoring for lumber. The car shortage has seriously affected conditions and premiums are offered by those who hope for prompt delivery. Efforts are being made to secure more cars from northern lines.

G. Lloyd Preacher & Company of Raleigh, N. C. are preparing plans for a 10 story office building to be erected by the Odd Fellow's Lodge at Raleigh, at a cost of \$300,000.

TEXTILE

September Cotton Estimate American Cotton Association 9,719,826 Bales.

The September 22 condition of the cotton crop as estimated at 49.8 per cent, based upon the usual methods of calculation and applied to the American Cotton Association's estimated acreage of 33,693,260 acres in cultivation, would forecast the 1922 crop at 9,719,826 bales.

Attention is specifically called to the widespread premature opening of cotton in different States, indicating a general average premature opening of 73 per cent. A large number of the reports state that the bolls contain only two to three locks of cotton to the boll and that picking will be completed by October 1. It is impossible to forecast with any degree of accuracy what effect the premature opening of the crop will have upon the final yield. It will, of course, adversely affect the production as a factor not ordinarily calculated in the condition reports.

The report shows a loss in condition for the 30-day period covered, of 6.4 per cent. The 10-year average for September is 59.5 per cent, which shows that the present estimated condition of the crop is 9.7 per cent under the general average.

Correspondents generally state that the deterioration of the crop, premature opening of the bolls and shortage of locks to the boll, is due to extraordinary dry weather over a large area of the belt and heavy infestation of the boll weevils.

The rapidity with which the crop is reported as being picked and ginned, with practically no top crop, would indicate that picking and ginning will close at a very early period in all sections.

International Cotton Bulletin.

The International Federation of Master Cotton Spinners' and Manufacturers' Associations, Manchester, England, is now issuing an International Cotton Bulletin. It will be issued four times a year, approximately every quarter. International statistics of cotton mill consumption and stocks will be incorporated every half year. The present September issue of the Bulletin contains these statistics for the half year ended July 31, 1922. Reports of the Rio Cotton Conference will be included in the second number of the Bulletin.

Cotton Offices at Havre and Bremen.

Dallas, Texas., Sept. 30—[Special.]—According to an announcement made this week at offices of the American Cotton Growers' Exchange, foreign offices will be opened in Havre, France and in Bremen, Germany within the next thirty days. The sale of cotton to French mills will be handled by the Havre office; the other offices will handle cotton for consumption in Germany, Russia, Poland and other central European countries.

Textile Mill Notes.

The National Woolen Mills of Charleston, W. Va., have voted to increase capital to \$1,000,000.

A nosiery mill with \$60,000 capital is contemplated by O. L. Benson, C. B. Mathews and J. E. Shreve, at Andalusia, Alabama.

The Princeton Hosiery Mills Company of Princeton, W. Va., recently noted, incorporated with \$75,000 capital, has secured a site and will erect a \$15,000 mill. L. G. Bowling is president.

J. E. Sirrine & Co. of Greenville, S. C. have been selected gas engineers on the mill to be erected by the Cash Cotton Mills of Blacksburg, S. C. As previously announced the plans call for erection of a 10,000 spindle mill, with 260 looms.

British Cotton Interests to Be Well Represented at International Cotton Conference.

The final arrangements have now been completed for the International Cotton Congress to be held at Rio De Janeiro from October 15 to 26. The Lancashire, Eng., cotton industry will be represented by F. Holroyd, the president of the Master Spinners' Federation, J. M. Thomas, a vice-president of the Masters' Federation, Cecil Hilton, of Oldham, H. Roberts, of Ashton-under-Lyne, and Arno S. Pearce, the general secretary of the International Cotton Federation. The Liverpool Cotton Association will be officially represented by its president, J. H. Clegg, and the Manchester Cotton Association by A. Morris. The Bremen Cotton Exchange will be represented at the Conference, and W. Irving Bullard will be the official delegate of the United States National Association of Cotton Manufacturers.

The chief subjects for discussion at the Conference will be, the improvement of cotton growing in Brazil, diseases and pests of cotton, ginning and handling of cotton and by-products, intensive cotton cultivation, and the classification of cotton and establishment of commercial types.

Increased Consumption of American Cotton in Europe.

Consumption of American cotton in Great Britain, France, Germany, Italy, and Czecho-Slovakia was nearly 30 per cent larger for the 12 months ending, July 31, 1922, than during the previous season, according to figures furnished the Agricultural Department by the International Federation of Master Cotton Spinners and Manufacturers' Associations.

Consumption in Great Britain increased 34 per cent over the preceding 12 months, the figures being 2,038,000 bales, compared with 1,515,477 bales in 1920-21. Czecho-Slovakia led in the rate of increase with a gain of nearly 47 per cent, having consumed 246,000 bales, compared with 167,628 bales the preceding season.

Consumption in Germany was 827,000 bales, an increase of 217,000 bales over last year; France consumed 565,000 bales, an increase of 108,000 bales; and Italy consumed 513,000 bales, an increase of 30,000 bales.

Total mill stocks on July 31, 1922, in the five countries named were 501,000 bales, compared with 529,411 bales on July 31, 1921.

Begin Construction of Hosiery Mills.

Bluefield, W. Va., Sept. 30—[Special.]—Ground will be broken next week for the new plant of the Princeton Hosiery Mills. The structure will be 50 by 150 feet, and it is expected that it will be ready for the installation of machinery by February.

Construction Begins on 10 Story Hotel.

San Antonio, Texas, Sept. 22—[Special.]—Contract has been awarded to J. DePuy for the erection of the ten story hotel building by the Travis Investment Company at Main avenue and Travis street. Preliminary excavation work has begun. The building will be of reinforced concrete faced with tapestry brick, and the contract calls for completion of the structure in 240 working days. The architect is Herbert S. Green.

According to P. J. Reilly, of the Opelousas Trade Extension Bureau, Opelousas, La., two rice mills and a cotton mill, as well as a large steam laundry have become interested in locating in the city due largely to the exemption from taxation of such industries for a period of five years. On October 25 a cotton carnival will be held as a result of a good season for cotton as well as cane, sugar and rice. The city is interested in having other industries locate there.

MECHANICAL

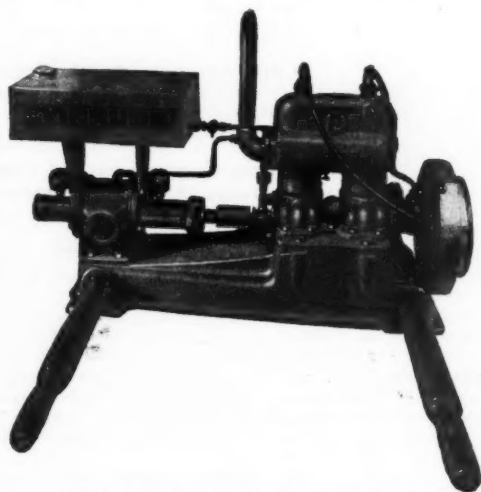
High Pressure Portable Pump.

Although it was originally designed for fighting forest fires the portable high pressure pump shown in the illustration herewith can be advantageously used for many other purposes, in fact more and more new fields of work for it are coming every day to the notice of the manufacturers, the Evinrude Motor Co., Incorporated, Milwaukee, Wis.

Lightness in proportion to its capacity is a distinctive feature of this pumping outfit, for it weighs not quite 100 pounds complete, although its capacity is 2400 gallons an hour at a pressure of 70 pounds or 900 gallons an hour at 155 pounds pressure. At a head of 277 feet, or through $1\frac{1}{8}$ miles of $1\frac{1}{2}$ inch pipe it will deliver 1500 gallons an hour; at a pressure of 120 pounds it will throw a stream 100 feet through a $\frac{3}{8}$ inch nozzle.

The pump is a small Viking special internal gear pump which is directly connected to an Evinrude 4-5 horsepower, two cylinder, two cycle motor having the widely known "magneto-built-in-the-fly-wheel." The pump and motor are mounted on a strong aluminum base and the length over all is 31 inches, width $11\frac{1}{2}$ inches, height 17 inches, suction 2 inches and discharge $1\frac{1}{2}$ inches. Two men can carry the outfit easily, but if permanent installation is desired there are bolt holes provided in the base for the purpose.

Besides in forest fire fighting, in which work it can be easily carried by two men, the outfit is also of great value on farms, country estates, at resorts, at summer homes, etc., for filling



PUMP WITH HANDLE FOR CARRYING.

pressure tanks, fire fighting, irrigation, watering lawns and gardens. It is also invaluable for fire departments in small towns, and contractors can also use it advantageously for conveying water to concrete mixers. Manufacturers, steamboat and steamship companies find it valuable for washing out boilers. Lumber firms also find employment for it in the way of fire protection.

An Improved Cellar Drainer.

A new attachment which can be applied on all their cellar drainers now in use, one which increases their efficiency by overcoming trouble when sump water rises so slowly as to make a dead center in the valve mechanism, has been developed by the Penberthy Injector Company, Detroit, Mich., and is illustrated herewith.

Drainers have been extensively employed for years in basements of residences, office buildings, factories, elevator pits,

scale pits etc., to remove seepage water accumulating below the natural drainage level of a sewer, but it is remarked

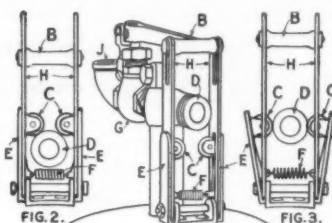


FIG. 2.

FIG. 3.

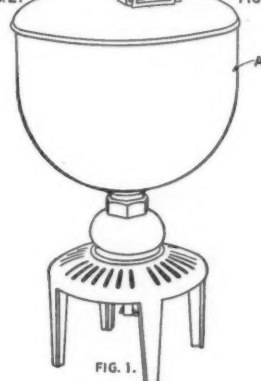


FIG. 1.

CELLAR DRAINER SHOWING DETAILS.

that the one trouble common to pumps of this type has been that if the sump water rises very slowly, the float acts on the valve so gradually as to often open it very little, preventing the float from rising further, stopping the valve movement and creating a dead center position.

With the new device as the water accumulates in the sump the float A rises the slotted member H to a point just short of engaging the lever B which operates valve G. Here it is stopped by the pair of rollers C engaging the lower side of web of the ejector casting D with a scissors grip. It is held at this point

until the seepage water in the sump has risen around it and built up enough buoyant force to overcome the grip of the rollers and open the roller arms E against the tension of the helical spring F. (See Figure 3). The float A, now freed from the restraining rollers C, pops upward to its normal flotation level and in so doing engages the valve lever B, which instantly opens valve G to maximum capacity. This starts a full flow through the ejector D and overcomes the dead center trouble.

The return action is just the reverse but the principle is the same. As the water is pumped out of the sump and the water recedes, the float drops the length of the slots in the arms H to a point where the rollers once more engage in the upper side of web of the ejector casting, thereby holding the valve G open. (See Figure 2). As the water recedes still further the weight of the float A overcomes the resistance of the spring tension F, the roller arms E open, and the float drops to its normal flotation position, thereby instantly closing the valve G.

A new and improved ejector is also being fitted to the drainer and it will operate on much less pressure of the service water supply than has been used heretofore, this resulting in greater economy of service. The action of the drainer is entirely automatic.

Spanish Market and American Products.

Devilliers & Partners, importers and exporters of Spanish and American products, Madrid, Spain, write the MANUFACTURERS RECORD as follows:

"Our firm here by its connections and relations and by its numerous agencies is ready to offer service to American industries. American manufacturers are not sufficiently represented in Spain and Portugal, and Colonies, and there is an ample field of business for them. It is true that they do not know the country, its customs, and its necessities. The Federation of the British Industries, have opened here an office and a sample room. It is managed by a commissioner, who receives an annual fee of 4000 ls., in addition to all costs of rent, clerks and general charges. This organization is to supply to eventual buyers every information on British industries, and appoint local agents where found necessary."

Construction Department

EXPLANATORY

Additional information is published about all enterprises mentioned in this department as soon as such data can be obtained. Further facts about any incomplete or incorrect item reported in these columns are always appreciated.

DAILY BULLETIN

The Daily Bulletin is published every business day to enable its subscribers to follow up promptly the industrial, commercial, railroad, financial, building and general business development of the South and Southwest. To machinery manufacturers and dealers, contractors, engineers, and others who require daily information of every new enterprise organized and details about important additions to enterprises already established, the Daily Bulletin is invaluable. Subscription price, \$20.00 a year.

Bridges, Culverts and Viaducts.

Ark., Glenwood—State Highway Dept., Little Rock, let contract to M. K. Orr, Harrison, Ark., at \$20,000, for bridge across Caddo Creek, at Glenwood, on Bankhead Highway.

Ala., Huntsville—State Highway Dept., Montgomery, Ala., let contract to Stanley & Singer, Lafayette, Ala., at \$54,617.85, for 2 reinforced concrete bridges; girder type; 1461.27 cu. yds. Class A, and 239 cu. yds. Class B concrete; 196,286 lbs. steel reinforcing; Madison County, Federal Aid Project No. 39-B; W. S. Keller, State Highway Engr. (Lately noted.)

Ga., Brunswick—State Highway Dept., Atlanta, Ga., plans building 4 bridges on Brunswick-St. Simon Highway; concrete piling and creosoted lumber; concrete or creosoted timber piers backed with stone; swinging draw bridges on center piers: Over Back River, 1063 ft.; over Little River, 810 ft.; over McKay's River, 1230 ft.; over Frederica River, 1528 ft.

Fla., Jacksonville—Duval County Comms., Chas. A. Clark, Chrmn., let contract to McCormick & Sanchez for 36-ft. wooden bridge and bulkheads over Mile Branch on Middleburg road. (Lately noted.)

Fla., Tampa—Hillsborough County Comms., C. T. Friend, Chrmn., plans constructing steel bridge over Hillsborough River at Sulphur Springs; Jas. A. Mortland, Consol. Engr.

La., Franklin—City. For full details see Mch. Wanted—Culvert Construction.

La., New Orleans—Louisville & Nashville Ry. Co., W. H. Courtenay, Chief Engr., Louisville, Ky., plans constructing 4,595 ft. steel bridge over Rigolets, near New Orleans; John Bose, Supt., New Orleans, Div.

Miss., Macon—Noxubee County, Board of Suprvs., will build concrete and steel bridge. For full details see Mch. Wanted—Bridge Construction.

Miss., Yazoo—For full details see Road and Street Construction.

Missouri—State Highway Dept., Jefferson City, Mo., will build 11 reinforced concrete bridges. For full details see Mch. Wanted—Bridge Construction.

Mo., Archie—Cass County Court plans constructing bridge across Grand River Drainage ditch; \$8000. Address County Comms.

Mo., Caruthersville—State Highway Dept., Jefferson City, Mo., will construct 3 reinforced concrete bridges. For full details see Mch. Wanted—Bridge Construction.

Mo., Kennett—State Highway Dept., Jefferson City, Mo., will construct 2 reinforced concrete bridges. For full details see Mch. Wanted—Bridge Construction.

N. C., Murphy—Clay County Comms. let contract to W. T. Moore Concrete Products Co., Andrews, N. C., for 3 concrete bridges, over Fires, Tusquette and Crawford Creeks.

S. C., Charleston—State Highway Dept., Columbia, S. C., contemplates constructing bridge across Ashley River.

Tex., Houston—City, will build reinforced concrete bridge. For full details see Mch. Wanted—Bridge Construction.

Va., Portsmouth—Norfolk County Comsn. of Roads and Streets, Portsmouth, will build West Norfolk Bridge across Elizabeth River, from Port Norfolk to West Norfolk; \$125,000; 18-ft. roadway; let contract to Atlantic Bridge Co., Roanoke, Va., at \$64,800, for steel draw span; 336-ft. pivot-bearing swing, on concrete pier, supported by timber piles; electrically operated; 140-ft. clear opening; R. B. Preston, Engr. (Lately noted.)

Va., Suffolk—State Highway Comsn., Richmond, Va., will build bridge over spillway at Lake Kilby.

Canning and Packing Plants.

Fla., Goulds—Goulds Packing Co., capital \$50,000, inceptd. with Rich M. Rice, Prest.; Edw. L. Peacock, Vice-Prest.; J. H. Ines, Coward, Secy.-Treas.

Fla., Mt. Dora—Lake Dora Packing Co. will improve plant, will install pre-cooling plant of 4 rooms, with capacity of 1440 boxes; cost about \$15,000; James Simpson, Supt.

Fla., Ocala—Marion County Farmers Assn., capital \$10,000, inceptd. with J. D. McDuffy, Prest.; N. T. Brown, V.-P.; N. T. Brown, Secy.

N. C., Kinston—Kinston Canning Co., will establish plant for canning vegetables, install equipment. Address Chamber of Commerce. (Lately noted.)

Tenn., Greeneville—For full details see Ice & Cold Storage Plants.

Va., Harrisonburg—Rockingham Apple Growers Assn., T. M. Thompson, Prest., let contract for construction of apple packing house, 100x85 ft.; ordinary construction cost \$10,000; will install grading mch. to cost about \$1000. (Lately noted.)

Clayworking Plants.

Ga., Rome—Bricks—B. Midlin Hood Brick Co., of Atlanta, Ga., purchased plant of Rome Fireproofing Co., will remodel and enlarge plant for mfr. of hollow building tile, expending about \$75,000; reported to establish plant to mfr. impervious light-face brick.

Coal Mines and Coke Ovens.

Ga., Atlanta—Big Creek Coal & Iron Co., capital \$16,000, inceptd. by J. L. White, Hugh Howell and S. F. Evans.

Ky., Acosta—Acosta Mining Co., inceptd. by W. H. Cottingham, W. C. Burch and Ed. Purcifil.

Ky., Pineville—New Straight Collieries, increased capital to \$75,000.

N. C., Henderson—Vance Coal & Lumber Co., capital \$25,000, inceptd. by E. G. and C. L. Finch, H. W. Anderson.

Tenn., Dayton—Cumberland Coal & Iron Co., plan developing mines to daily capacity of 1000 tons; opened additional mines, etc.

Va., Richmond—Richmond Fuel Corp., capital \$50,000, inceptd. with John E. Seaton, Prest.; Walker C. Cottrell, Secy.

W. Va., Clay County—Brady-Warner Coal Corp., capital \$6,000,000, re-organized with S. D. Brady, Prest.-Secy., Fairmont, W. Va.; issue \$1,100,000 bonds to purchase and improve 10,000 acres of coal land, increasing tonnage to 1,000,000 tons annually. (Supercedes recent item.)

W. Va., Lumber Port—Lebbo Gas Coal Co. (lately noted inceptd., capital \$50,000) organized with S. Clyde Lewis, Grafton, W. Va.; will develop 125 acres coal land, daily output 500 tons; has mch.; H. K. Burrell, Constr. Engr., Lumber Port.

W. Va., Mount Hope—Greenview Coal Co., capital \$15,000, inceptd. by E. G. Watkins, E. McK. Hardesty and H. D. Norton.

Concrete and Cement Plants.

Tex., Phoenix—Southwestern Portland Cement Co., O. J. Binford, Secy.-Supt., El Paso, Tex., reported to erect \$1,250,000 plant.

Cotton Compresses and Gins.

Tex., Donna—J. K. Martin, Sweetwater, Tex., interested in establishing cotton gin.

Drainage Systems.

Fla., Arcadia—For full details see Mch. Wanted—Drainage.

Mo., Guilford—Briggs & Drew, Omaha, Nebr., received contract to dig Platte River drainage ditch.

Miss., Marks—Pompey Lake Drainage District of Quitman County let contract to Clark-Hunt Contracting Co., Memphis, Tenn., at \$364,700 to construct drainage system. (Lately noted.)

Tex., Houston—Harris County Comms. created Drainage Dist. No. 11 also voted \$28,000 bonds; contemplates creating Drainage Dist. No. 12. (Lately noted.)

Electric Light and Power Plants

Ala., Birmingham—City, D. E. McLendon, Prest. of Water and Light Comsn., contemplates improvements to water and light plant at North Birmingham.

Ark., Little Rock—City will purchase electric system of Light and Water District No. 1, comprising Park Hill Addition; R. J. Rice, Chrmn. Board of Comms.

Ark., Searcy—City contemplates installing ornamental lighting system in business district. Address The Mayor.

Ark., Walnut Ridge—Central Power & Light Co. will improve plant and install additional equipment.

Fla., Ybor City—Business Mens Assn., P.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

F. Licata, Prest., interested in extension of white way.

Ga., Columbus—Columbus Electric & Power Co. will rebuild burned compressor and condenser house.

La., De Quincy—For full details see Water Works.

La., Mansfield—Mansfield Light & Power Co., C. E. Hewett, Mgr. or Chief Engr., will receive bids within next 60 days for installation of 20x36 Corliss engine to be belted to a 250 K. W. generator, 2300 volts, 600 R. P. M., pulley of generator 32-in. diam. (See Mch. Wanted—Electric Generator Set.)

Ky., Pikeville—Pike Light & Power Co., increased capital to \$200,000, will improve plant.

La., Plaquemine—For full details see Water Works.

Md., Hagerstown—City contemplating erection of electric light plant; will probably vote on \$300,000 bonds. Address The Mayor.

Mo., Franklin—Franklin Electric Co., capital \$20,000, inceptd. by B. E. Perkinson, John Rogers, R. E. Boon.

Mo., Higginsville—City will install white way for business district. Address The Mayor.

Mo., Kansas City—City will install lights on Swope Park and main boulevard approaches. Address The Mayor.

Mo., Mexico—Missouri Utilities Co. of Mexico, purchased 2000 H. P. turbo-generator; will construct spray pond and foundation, cost \$60,000. Address The Mayor.

N. C., Mt. Airy—Appalachian Power Co., of Bluefield, W. Va., reported considering construction of power line from Bluefield to Mt. Airy.

N. C., Winterville—For full details See Mch. Wanted—Electric Power Line.

N. C., Winston-Salem—For full details see Land Developments.

N. C., Yadkinville—For full details see Miscellaneous Factories.

Tenn., Chattanooga—For full details see Land Developments.

Okla., Bliss—City voted bonds for installation of electric lighting system. Address The Mayor.

Okla., Hugo—Hugo Power Co. will construct electric power line from Hugo to Soper and Boswell.

Okla., Morrison—City will install lighting system. Address The Mayor.

S. C., Florence—Palmetto Power & Light Co., reported to have purchased municipal plants at Dillon, S. C., Latta, S. C., and

Rowland, N. C.; will construct transmission line from Maxton, N. C. to Marion, S. C.

Tenn., Knoxville—Knoxville Power & Light Co., reported to increase capital to \$10,000,000; improve plant.

Tex., Abilene—West Texas Utility Co. operated by American Public Service Co. contemplates extending transmission system and installing distributing lines.

Tex., Amarillo—Board of City Development let contract for installing ornamental lighting system on various streets.

Tex., Corsicana—Corsicana Electric Light Co. contemplates constructing underground conduit system.

Tex., Haskell—West Texas Utilities Co. Abilene, Tex., contemplates extending transmission line to Haskell, Tuscola, Albany, etc.

Tex., Kosse—Kosse Light & Power Co., H. E. Blumberg, Owner-Mgr., will enlarge plant, erect brick veneer building; cost \$25,000.

Tex., Mercedes—Mercedes Light, Water & Power Co. will improve plant, construct power house, install additional mch.

Tex., Orange—Orange Ice, Light & Water Co., will extend power and light system.

Va., Sylvan—Sylvan Light & Power Co., capital \$10,000, inceptd. with G. W. Lewis, Prest.; I. Lee Gray, Secy.

Flour, Feed and Meal Mills.

Mo., Carl Junction—Coyne-Hatten Milling Co., A. D. Hatten, Propr., Webb City, Mo., will rebuild mill burned at loss of \$60,000.

Mo., Osage City—James M. Hays, of J. M. Hays Industries Co., let contract for erection of 100 bbl. flour mill; reinforced concrete; 5 story; fireproof; contract let for mch. (Lately noted.)

S. C., Greer—Greer Oil Mill & Feed Co., capital \$100,000, inceptd. with James M. Richardson, Prest. and Treas.; N. A. Collins, V. P.; O. B. Smith, Secy.

Tex., Corpus Christi—Yoakum Mill & Elevator Co., Tiger and Leopard Sts., J. W. Walker, Mgr., contemplate establishing elevator and warehouse.

Va., Petersburg—G. C. Wright and E. A. Hartley purchased plant of Virginia Consolidated Milling Co.

Foundry and Machine Plants.

Ala., Gadsden—Machine Shop—Gadsden Pipe Co. has under construction 40x80-ft. machine shop; fireproof.

Mo., Kansas City—Machine Shop—Hart Parr Co., capital \$2,500,000, inceptd. by C. W. Hart, C. H. Parr and C. D. Ellis.

Mo., Kansas City—Wilde Drop Forge &

Tool Co., capital \$50,000, inceptd. by Mary and Goldie Wilde, Paul Froeschl.

Mo., St. Louis—Joint Pipes, Valves, etc.—Flexo Supply Co., capital \$10,000, inceptd. by M. L. Evans, B. M. Brownell, Stanton Fitzgerald.

Gas and Oil Enterprises.

Fla., Ft. Pierce—Texas Oil Co. let contract to H. G. Mitchell, W. Palm Beach, Fla. to erect gas station at Ft. Pierce and Hopkins; cost \$200,000 each.

Fla., Hopkins—For full details see Fla., Ft. Pierce.

Ga., Columbus—Columbus Electric Co., R. M. Harding, Mgr., will repair gas plant lately damaged by explosion.

Okla., Muskogee—Almon Petroleum Co. capital \$50,000, inceptd. by W. A. and H. H. Peterson, Wm. D. Godfrey.

Okla., Muskogee—Wilson Improvements Co., capital \$150,000, inceptd. by T. K. Wilson, N. M. Muir, J. A. Loomis.

Tex., Austin—Austin Petroleum Co., capital W. H. McClanahan, H. A. Martin, Joe Taylor.

Tex., Cross Plains—Redwood Oil & Refining Co., inceptd. with C. T. Pledger, Prest.; J. H. Montgomery, Vice-Prest.; H. H. Taylor, Jr., Secy.-Treas.

Tex., San Antonio—Webb-Dimmit Oil Corp., capital \$150,000, inceptd. by P. W. Carbusier, M. L. Cummins, J. J. Laas.

Ice and Cold-Storage Plants.

Ga., Savannah—For full details see Misc. Factories.

Md., Salisbury—Salisbury Ice Co., purchased site, will erect additional ice storage house, capacity 6000 tons increasing plant capacity to 15,000 tons; build 400 ft. icing platform, double facilities.

N. C., Raleigh—Powell & Powell, Inc., increase capital to \$150,000.

Tenn., Greeneville—W. E. Minges, Jr., of Abingdon, Va. is prest. and John M. Kennedy, Greeneville, V. P. of company organized to establish ice and cold storage, packing, and ice cream plant.

Va., Portsmouth—Isaac Fass, Inc., has under construction 30x110-ft. brick and concrete building for third ice plant, with complete cold storage equipment; increasing capacity from 100 to 140 tons daily; also complete electrification of plant; total cost of improvements \$100,000. (Lately noted.)

Land Developments.

Ala., Florence—Florence Exchange Club, F. T. Appleby, Prest., L. S. May, Secy., will

OPPORTUNITIES FOR NEW BUSINESS

THROUGH THE

DAILY BULLETIN

Manufacturers of Machinery and Equipment, Dealers in Railroad and Contractors' Supplies, as well as Architects, Contractors and Builders, find it very profitable to follow up the advance news furnished through our **DAILY BULLETIN EVERY BUSINESS DAY IN THE YEAR**. It is an authoritative, prompt source of information concerning every industrial and railroad undertaking of any consequence, and likewise all important building operations and municipal improvements in the whole South. The opportunity of getting in correspondence with firms that are in the market is afforded by a daily perusal of its columns.

MANUFACTURERS RECORD

BALTIMORE, MD.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

develop 3½ acres for athletic field; construct grandstand to accommodate 2000, fence 7 feet high and complete drainage system; address building proposals to A. T. Putteet, Chrmn. (Lately noted.)

Fla., Bartow—Southern Adapted Nurseries, capital \$125,000, inceptd. with T. G. Lockwood, Prest.; F. J. Zimmerman, Vice-Prest.; E. L. Zimmerman, Secy.-Treas.

Fla., Cutler, P. O. Crystal River—Cutler Bay View Co., capital \$150,000, inceptd. with Lee Jutton, Prest.; David T. Lorriaux, Vice-Prest. and Treas.

Fla., Mascotte—J. M. Bohannon, Dauville, Va., purchased tract of land, develop 20 acres for orange grove.

Fla., Mascotte—B. F. Roper, of Winter, Garden, Fla., will develop 20 acres for orange groves.

Fla., Mascotte—Stone Bros. acquired 54 acres of land; will develop for orange grove.

Fla., Miami—Carter Realty Co., capital \$100,000, inceptd. with E. J. Carter, Prest.; W. T. Carter, Vice-Prest.; T. E. Donovan, Secy.

Fla., Orlando—Perfection Orange Co., capital \$150,000, inceptd. with F. A. Nave, Prest.; T. L. Comer, Vice-Prest.; G. V. Nave, Secy.

Fla., Orlando—Lake Apopka Groves Co., capital \$100,000, inceptd. with S. E. Durraunce, Prest.; Clay Binlon, Vice-Prest.; F. N. Watkins, Secy.-Treas.

Fla., Tampa—I. W. Sample, Prest. and R. H. Stout, V.-P. of company organized to develop Ridgewood Park, tract of 104 acres for sub-division; will construct 50-ft. river drive; will probably develop section of tract for park.

Fla., Tampa—Golden Ring Groves, Vet L. Brown, Vice-Prest., 316 Madison St., Hillsboro Hotel Bldg.; subsidiary of Lake Garfield Nurseries Co., Bartow, Fla., will develop 1250 acres citrus fruits.

Ga., Tifton—R. O. Crocker, Jr., of Atlanta Trust Co. and Georgia Assn., H. G. Hastings, Prest., Atlanta, Ga. Interested in development of land for agricultural and land colonization.

Ky., Louisville—Southern Development Co., capital \$20,000, inceptd. by R. W. Fallis, A. H. Kornfeld, J. A. Thomas.

La., Monroe—Casper Co., capital \$100,000, inceptd. with Louis H. Casper, Prest.

Md., Baltimore—Belhaven Realty Co., 919 Munsey Bldg., capital \$200,000, inceptd. by Edw. J. Gallagher, John T. Murphy, James Clarke Murphy.

Miss., Greenville—City will vote Oct. 17 on \$100,000 bonds for park improvements. Address The Mayor.

Mo., Carthage—Geo. Cochran interested in developing 5 acre site for baseball park.

Mo., St. Louis—Edmunds Building Co., inceptd. H. M. Edmunds, G. E. Buckworth, M. A. Edmunds.

N. C., Winston-Salem—Smithdeal Realty & Insurance Co. will develop 40 acres for home-site, will construct bitulithic streets, cement sidewalks, install electric lights, sewer and water.

N. C., Winston-Salem—Butner Orchard Co., capital \$155,000, organized with R. M. Hanes, Prest.; A. L. Butner, Secy.-Treas., both of Pine Bluff, M. F. Butner, Mgr., develop 6300 acres in Scotland and Richmond counties for peach orchard.

S. C., Spartanburg—City Park Commission, W. S. Glenn, Chrmn., interested in development of park in southern section.

Tenn., Chattanooga—J. F. Crabtree and R. W. Olmstead will develop 50 acres of land east of Missionary Ridge for sub-division;

will install streets, water and light systems, cost about \$15,000.

Tenn., Chattanooga—John M. Gerren, Pikeville, Tenn., purchased 245 acres land on Walden's Ridge and will develop for health resort; construct roads, swimming pool, build deep well, water to be pumped from well to reservoir, erect church, hotel, library, etc.

Tex., Dallas—Dallas Development Co., capital \$75,000, inceptd. by Lizzie Liles Windsor, G. O. Newman, B. C. Lucas.

Tex., El Paso—City will improve Mountain Park, construct roads, install water pumping station; Geo. Kessler, Engr. and Archt., in charge.

Tex., Ft. Worth—Hugh Small, Chrmn. of Lions Club, interested in development of golf course.

Va., Norfolk—Rockbridge Realty Corp., capital \$50,000, inceptd. with W. L. Parker, Prest.; H. W. Dure, Secy.

Va., Richmond—Myrtle Grove Corp., organized to develop 210 acre tract on Chamberlaine Ave. for cemetery.

W. Va., Huntington—Acme Realty Co., capital \$25,000, inceptd. by M. L. Comstock, R. H. Perry, C. H. Estes.

Lumber Manufacturing.

Ark., Brinkley—Southern Lumber Supply Co., Warren, Ark., acquired plant of Wright Lumber Co., will operate; probably enlarge.

Fla., Tampa—Roux-Denton Lumber Co., capital \$500,000, reorganized with E. T. Roux, Prest.; H. L. Askew, Secy.-Treas.

Tex., Plainview—E. T. Coleman Co., capital \$20,000, inceptd. by M. R. and E. T. Coleman, C. W. Tandy.

Metal-Working Plants.

Ky., Louisville—Electrical Supplies, etc.—Burdorf Co., capital \$100,000, inceptd. by Fred G. and I. C. Burdorf, Edw. G. Klemm.

Ky., Louisville—Safety Devices—Jones National Automobile Registration System, capital \$25,000, inceptd. by C. M. Jones, H. S. Green and Thomas E. Schrock.

La., New Orleans—Metal Signs—Liberty Mfg. Co., purchased site on Carrollton Ave., will enlarge plant and install additional machinery; mfre. electric signs, etc.

Mo., Jefferson City—Weather Strips, etc.—Building Products Mfg. Corp., capital \$10,000, inceptd. by H. F. Fahrenkrog, J. M. and A. M. Hartz.

Mo., Kansas City—Chains—Bunker Mfg. Corp., capital \$150,000; inceptd. by L. R. Van Houten, C. A. Bunker and K. E. Kryder, mfre. ground gripper tire chains.

Mo., St. Louis—Screen Doors, etc.—Mid-West Screen Companies, capital \$80,000, inceptd. by R. C. Urquhart, Herman Kehlert, J. T. Hicks.

N. C., Charlotte—Southern Oil Burner Co., capital \$100,000, inceptd. with Charles F. Shuman, Prest.; Charles P. Heindel, Secy.; mfre. automatic oil burner.

Tex., Dallas—Southern Wire & Iron Co., W. A. Sedwick, Prest. reported to enlarge plant, purchased 7 acre site, erect four factory units, approx. cost \$50,000; ornamental iron, structural steel and miscellaneous products will be fabricated in new plant. (Lately noted increased capital to \$75,000.)

Mining.

Mo., Cape Girardeau—Silica, etc.—Monarch Materials Corp., capital \$10,000, inceptd. by Chas. Miller, S. F. Lloyd and U. S. Higdon.

Mo., Klondike—Tavern Rock & Mining will rebuild power plant, burned at loss of \$10,000.

S. C., Clover—Granite—Clover Quarry Co., inceptd. by James L. Pursley, S. N. Stacey and V. Q. Hambricht.

Tenn., Concord—Concord Lime Co., capital \$10,000, inceptd. by H. G. and M. L. Winfrey, O. L. White.

Tex., Victoria—Sand and Gravel—Guadalupe River Navigation Co., W. B. DuPre, Treas.-Gen. Mgr. (lately noted moving present plant to another location on river) dredge sand and gravel from Guadalupe river, daily capacity 20 cars; install dredging pumps, boilers, engines, etc. (See Mch. Wanted—Engines; Boiler; Bucket (Clam Shell); Motor.)

Miscellaneous Construction.

Ark., Hot Springs—Mausoleum—Col. John R. Fordyce, interested in building of community mausoleum at Hollywood cemetery, stone, bronze and art glass used in construction; capacity 200 vaults and 5 private family rooms; John Almand, Archt., Little Rock, Ark.

Fla., Bartow—Mausoleum—City contemplates erecting mausoleum; Dr. R. A. Nichols, Winter Haven, Fla., interested.

Fla., Ft. Lauderdale—Inlet—Broward County Comms. will construct inlet from New River Sound to Atlantic ocean, work includes 81,000 cu. yds. earth removal and 5000 cu. yds. rock; furnished and place 6200 cu. yds. riprap and jetty hearthing and 2500 tons Jetty capping; bids open Oct. 3; Frank A. Bryan, County Clk. (See Mch. Wanted—Inlet Construction.)

Fla., Jacksonville—Pier—City Comsn., E. P. Owen, Jr., Secy., will extend present municipal dock facilities; work involves construction of 1000 ft. pier, 350 ft. wide, providing total water frontage of 2933 lin. ft.; solid earth fill behind bulkhead walls constructed of steel sheet piling, backed by wood pile and timber relieving platform and capped by concrete retaining wall; build on pier 850 ft. steel transit shed and 100 ft. in clear inside span, exclusive of two 15 ft. floor hang canopy roofs; cotton storage warehouse of 6 compartments, each 75x100 ft.; load bearing tile and mill construction roof; automatic sprinkler fire protection; anticipates re-arrangement of railroad yard facilities to serve existing piers as well as new work; has \$1,000,000 available; bids until Oct. 23 for first unit in construction of entire program; Geo. B. Hills Co., Engr. (See Mch. Wanted—Steel Bulkhead Wall.)

Fla., Winter Haven—Mausoleum—Scott Morris Mausoleum Co., have begun construction of 91x30-ft. mausoleum in W. O. W. cemetery; granite and polished marble; capacity 250 crypts.

Ga., Augusta—Swimming Pool—City contemplates constructing \$10,000 swimming pool in Allen Park. Address The Mayor.

Ga., Savannah—Wall—J. W. Fitzgerald received contract at \$378,280 to raise oyster bed training wall at entrance of Savannah harbor. (Bids lately noted.)

Ky., Louisville—River Improvements—U. S. District Engr.'s Office, Box 72, will construct 110x600-ft. dam across Ohio river, extending lock and dam system; bids open about Mar. 1, 1923.

La., Baton Rouge—Dyke—City Comms. let contract to O. O. Ogden to reconstruct dyke, enlarge to standard grade and build new spillway.

La., New Orleans—New Orleans Port Comms., J. H. Walsh, Mgr., 200 New Court Bldg., let contract to Dalgarn Construction Co., and Richardson Scale Co., for foundations to 1 story, 340x120-ft. mill construction building for sacking grain, hourly ca-

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

capacity 7200 bu.; install scales and sacking machines.

La., New Orleans—Levees—Board of State Engrs., 213 New Orleans Courthouse, let contract to W. E. Morgan to raise Southport levee to standard grade, 38,500 cu. yds. earth work; bids open for following work:

Rapides Parish, Wilson Point levee, 55,000 cu. yds. new levee.

Avoyelles Parish, Sarto levee, 37,000 yds. repair on right bank of Bayou des Glaizes.

St. Landry Parish, Neilson levee, 78,000 cu. yds. new levee and 65,000 yds. new levee an enlargement.

West Feliciana Parish, 215,000 ft. on section No. 1 and 67,000 ft. on section No. 2.

Caddo Parish, 65,000 yds. along Magnolia levee.

St. John the Baptist Parish, 38,000 cu. yds. Bonnet Carre Point levee.

St. Charles Parish, 40,000 cu. yds. in Waterford levee.

Jefferson Parish, 45,000 cu. yds. in Penick and Ford levee.

East Carroll Parish, 35,000 cu. yds. in Haggaman South levee, and 119,000 cu. yds. in Villa Vista.

Madison Parish, 26,000 cu. yds. Morancy levee; 60,000 cu. yds. Milliken Bend levee; 75,000 cu. yds. Harris Field to Killaryn levee; 50,000 cu. yds. to Willow Glen levee.

Md., Baltimore—Pier—Port Development Comsn., John E. Greiner, Chrmn., approved lease to Western Maryland Ry. Co., for \$5,000,000 pier, bulkhead and warehouse at foot of McComas St.; Bancroft Hill, Harbor Engr.

Miss., Vicksburg—Seawall—Board of Trade, Levee Street Improvement Comn., Henry Biedenbarn, Chrmn., have tentative plans for construction of seawall, plans provide for reinforced concrete wall extending from the foot of China St. south 4000 ft.; also for several streets and approaches to river landing; approx. cost \$250,000; C. H. Miller, Engr., Little Rock, Ark.

Texas Parish—50,000 yds. Pinola levee; 15,000 yds. in Summerset levee and 30,000 yds. Duckpond levee.

Concordia Parish, 61,000 yds. Bougere levee, 20,000 Glasscock levee and 20,000 yds. Lower Green levee.

Tenn., Chattanooga—Swimming Pool—For full details see Land Developments.

Tenn., Chattanooga—Dam, etc.—Government appropriated \$150,000 for completion of dam at Widow's Bar; Maj. Fisk, Dist. Engr., in charge.

Tex., El Paso—Drainage, etc.—City, contemplates expending about \$12,000 in digging ditches and building levees for the eradication of the mosquito; recommends county drainage lake and old river bed in vicinity of Alameda and Collingsworth additions; R. E. Tarbett, Sanitary Engr.

Tex., Houston—Port Improvements—For full details see Road and Street Construction.

Tex., Orange—Waterways—Orange County Navigation Comsn., and County Commrs., interested in deepening of waterways in Sabine District; will vote on \$175,000 bonds.

Miscellaneous Enterprises.

D. C., Washington—American Co-operative Building Corp., capital \$100,000, inceptd. by H. C. Biscoe, A. C. Glancy and Geo. P. Hart.

Fla., Bradentown—Bradentown Home Building Co., capital \$50,000, inceptd., B. W. Williams, Prest.; John T. Campbell, Secy.-Treas.

Fla., Jacksonville—Dehydration—Florida Dehydration Co., capital \$75,000, inceptd. with Hugh S. Grainger, Prest.; M. H. Weaver, Secy.

rent building, install printing press, linotype, job press, job type, for general job work, etc.; about \$10,000; consider bids any time. (See Mch. Wanted—Printing Equipment.)

Ky., Frankfort—Kentucky School News Co., 418 Logan St. (lately noted inceptd., capital \$18,000) organized with S. S. Elam, Prest.-Mgr.; Brenda D. Elam, Secy.-Treas.;

Ky., Cynthiana—O. P. Raymond Construction Co., capital \$40,000, inceptd. by O. P. and F. A. Raymond, F. A. Van Deren.

Md., Baltimore—Morgan Pictures Corp., 416 Equitable Bldg., capital \$75,000, inceptd. by John A. Holden, Irving B. Kemp and George Morgan Simpson.

Md., Baltimore—Maryland Wrecking & Equipment Co., 1303 American Bldg., capital \$100,000, inceptd. by John E. Smith, Myer Rosenbush and Joseph Bernstein.

Md., Baltimore—Printing, etc.—Board of Prison Control, Ogle Marbury, Prest., Fidelity Bldg., let contracts for installing printing presses and equipment; shoe shop equipment and automobile sign and tag plant; total cost \$71,810.48. (Previously noted.)

Mo., Anderson—Livestock—McDonald County Jersey Co., capital \$10,000, inceptd. by S. M. Lyon, R. O. Miller and S. G. Chamberlain.

Mo., Kansas City—Pantages Kansas City Theater Co., capital \$850,000, inceptd. by Alexander Pantages, J. E. Ryan, G. E. Desmond.

Mo., Kansas City—Fire Equipment—Fire Comms. let contract at \$96,670.50 to United States Automatic Fire Alarm Co. to furnish central office and fire stations and fire alarm box equipment. (Lately noted.)

Mo., Springfield—Lohmeyer Undertaking Co., Mrs. Alma Lohmeyer, will erect plant at 534 St. Louis St.

Mo., St. Louis—Rick Chapline Electric Co., capital \$40,000, inceptd. by F. A. Rick, C. H. Chapline, E. S. Rick.

Mo., St. Louis—Auto Transportation Co., capital \$25,000, inceptd. by L. B. and E. P. Strebler, Frank Pelot.

N. C., Greensboro—Dick's Laundry Co., will erect 2-story, 105x158-ft. plant on E. Market and Lyndon Sts.; equip with complete laundry and dry cleaning mch.; approx. cost from \$40,000 to \$45,000.

Okla., Mangum—Greer County Farmers Union Co-operative Exchange, capital \$10,000, inceptd. by W. H. Pugh, Mangum; H. R. Atkinson, Jester, Okla., and others.

S. C., Bluffton—Snyder Hotel Co., capital \$25,000, inceptd. by H. M. Snyder, Bluffton; M. M. Chisholm and B. J. Peeples, both Estl., S. C.

S. C., Easley—Potato Curing—L. M. Bauknight, Secy., Sweet Potato Assn., let contract to Easley Lumber Co. to erect sweet potato curing house. (Lately noted.)

S. C., Spartanburg—True Citizens Publishing Co., inceptd. by A. M. & W. A. Carpenter.

S. C., Jonesville—Undertaking, etc.—Littlejohn-Fowler Co., capital \$10,000, inceptd. with E. L. Littlejohn, Prest.; N. S. Fowler, Vice-Prest. and Treas.

S. C., Walterboro—People's Hardware Co., capital \$10,000, inceptd. by G. C. Brown, W. C. Percy and G. J. Wescoat.

Tex., Dallas—Southwestern Dehydration Co., capital \$125,000, inceptd. by J. K. Boone, Joseph Green and F. E. Gilmore.

Tex., El Paso—Stationery—McMath Co., capital \$75,000, inceptd. by W. S. McMath, Albert Goodloe and N. M. Walker.

Tex., El Paso—Fire Equipment—W. T. Griffith, in charge of Police and Fire Depts.,

plans additional fire equipment, etc., for next year.

Tex., Houston—Lawlor's Cafe, Inc., capital \$10,000, inceptd. by James Lawlor, Courtenay Hutchinson and C. C. Cunningham.

Tex., Waco—Texas Transfer Co., capital \$15,000, inceptd. by R. B. Albough, A. B. Stringer and J. F. Lebaue, Jr.

Tex., Waco—Inclinator—City contemplates installing an additional 20-ton inclinator. Address City Commrs.

Tex., Waco—Texas Transfer Co., capital \$15,000, inceptd. by R. B. Albough, A. B. Stringer and J. F. Lebaue, Jr.

Va., Norfolk—Contracting—Tunstall-Johnson Co., capital \$50,000, inceptd. with K. C. Johnson, Prest.; E. R. Wilcox, Secy.

Va., Richmond—Dudley Printing Co., capital \$25,000, inceptd. with M. R. Massie, Prest.; G. E. Massie, Secy.

W. Va., Parkersburg—Assembly Hall Co., capital \$15,000, inceptd. by M. C. Stewart, T. S. Field, both Parkersburg; H. R. Nuzum, Belpre, Ohio.

W. Va., Welch—Peerless Laundry, capital \$100,000, inceptd. by J. W. Blakely, B. H. Gray, both Welch; Edward O'Toole, Gary, W. Va.

Miscellaneous Factories.

Ala., Montgomery—Underwear—Litewear Mfg. Co., capital \$25,000, inceptd. by A. O. Brett, Bernard W. Scheer, F. K. Mann.

Fla., Hibernia—Elixir Mineral Water Co., J. M. Mahoney, Prest., E. I. Custer, Mgr., main office, 425 Graham Bldg., Jacksonville, Fla. Lately noted. (See Mch. Wanted Bottling Equipment.)

Fla., Jacksonville—Jacksonville Mattress Co., capital \$10,000, inceptd. with H. L. Mattox, Prest.; J. N. Chester, Vice-Prest.; D. G. Mattox, Secy.-Treas.

Ga., Augusta—Repairing Materials—McAllister Method Co., 566 Broad St., organized with T. A. McAllister, Prest.; G. T. Rhodes, Secy.-Treas.; mfrs. repair materials for vulcanizing.

Ga., Savannah—Dairy Products—Sugar Creek Cream Co. of Danville, Ill., will establish dairy branch; also construct cold storage plant.

Ky., Louisville—Axton-Fisher Tobacco Co., will construct addition to plant at 811 S. Twentieth St.; 5 story; containing 60,000 sq. ft. floor space; cost \$150,000.

Ky., Paducah—Clothing—Merit Mfg. Co., Second and Jefferson Sts. will install additional equipment.

Ky., Paducah—Irvin & S. Cobb Cigar Co., Third and Elizabeth Sts., will erect daylight factory building; brick; 2-story and basement; triple output of plant; plans by D. Harry Jamieson; will soon call for bids.

Ky., Russellville—Independence Nitro Co., lately noted inceptd., organized with D. W. Kennedy, Prest., Richmond, Va.; Stone W. Norman, Secy.; will construct plant, 22x60 ft.; ordinary construction; daily output 800 qts. of nitro glycerine; John H. Berry, Contr., Union City, Ky. (See Mch. Wanted—Nitro Plant Equipment.)

Ky., Williamsburg—Carbon Black—Walter Simpson, Prest., Iroquois Natural Gas Co., reported interested in erection of carbon black plant; initial plant will consume 6,000,000 ft. of gas daily; cost \$200,000.

La., Monroe—Raggio Drug Co., capital \$15,000, inceptd. with T. P. Raggio, Prest.; A. R. Mallory, Secy.-Treas.

La., New Orleans—Paint—Louis F. Guere & Co., inceptd. by Louis Guerre, Fitch H. Kelly and others, to mfrs. "Dura-Lastic" waterproof roofing cement and metal paint.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Md., Salisbury—Ice Cream—Peninsula Ice Cream Co., capital \$25,000, inctpd. by H. W. Ruark, Prest., Wm. P. Ward, V.-P., C. M. Freeman, Secy.; will erect plant.

Md., Salisbury—Shirt—Salisbury New Industries Co., Inc., W. P. Ward, Prest., Hoopers S. Miles, Secy. let contract to J. W. Windsor for construction of plant to be occupied by Rombro Bros., Baltimore.

Miss., Jackson—Jackson Bakery Co. let contract to I. C. Garber, to construct bakery; 80x180 ft.; reinforced; fireproof; tile; cement and wood floors; steam heat; install passenger and freight elevator; cost \$70,000; N. W. Overstreet, Archt.

Mo., Higginsville—Shoes—International Shoe Co. of St. Louis contemplates constructing shoe plant.

Mo., Kansas City—Cold Storage Insulating & Equipment Co., inctpd. by J. F. Flaherty, J. R. Rolley and A. E. Lake.

Mo., Kansas City—Dr. A. Reed Cushion Shoe Co., capital \$17,000, inctpd. by T. F. Jacques, J. P. Colvin, R. W. Sturgeon.

Mo., St. Louis—Clothing—Peters Co., capital \$500,000, inctpd. by F. W. Peters, M. J. Siegfried, Louis Malz.

Mo., St. Louis—Pageant Garment Co., capital \$21,000, inctpd. by S. Siegel, A. Olson, L. M. Lachow.

Mo., St. Louis—Shoes—Creel Mauldin & Chambers, capital \$18,000, inctpd. by T. L. Croteau, S. E. Dill, C. H. Blaske.

Mo., St. Louis—Paris Hub Shoe Co., capital \$25,000, inctpd. by Hyman Schucart, J. H. Tober.

Mo., St. Louis—Hart Dairy Co., inctpd. by H. J. Hart and E. G. Busmann.

N. C., Burlington—Mutual Fountain Carbonation Co., capital \$10,000, inctpd. by N. A. Greg, W. M. Williams, L. M. Squires.

N. C., Morgantown—Bakery—L. C. Bost of Shelby, N. C., interested in establishment of bakery.

N. C., Yadkinville—Garment—Dixie Bond & Mortgage Co. S. Carter Williams, Prest., purchased Vestal Mill property, near Yadkinville, expect to develop power and install overall or other garment factory.

Okla., Bristow—Brooms—J. S. Leftwich of Drumwright will enlarge plant and install additional mchy.

Okla., Norman—Norman Baking Co., capital \$25,000, inctpd. by U. S. Tubb, F. J. McGinley, Ben T. Fleming.

Okla., Sapulpa—Goltz Geetch Clothing Co., capital \$25,000, inctpd. by Harry Goltz, Louis Geetch, J. J. Coenan.

S. C., Florence—Refrigerating System—American Railway Car Cooling Co., B. J. Blume, Prest., New York, will construct experimental shops for mfg. refrigerating system, using thermos control and automatic arrangement; about \$25,000 to be expended.

Tenn., Greeneville—Ice Cream—For full details see Ice and Cold Storage Plants.

Tenn., Knoxville—Silk Tie Mfg. Co., V. H. Spruill, Mgr., N. Central St., reported to erect plant.

Tenn., Knoxville—R. T. Clapp Battery Co. will construct plant on W. Park Ave.

Tenn., Knoxville—Standard Drug Co., capital \$5000, inctpd. by Dr. H. E. Christenbery, W. E. Belcher, J. H. Cole.

Tenn., Knoxville—Clothing—Hall-Tate Clothing Co., will construct plant on W. Jackson Ave.; concrete and steel; 6 story; cost about \$100,000.

Tenn., Memphis—Storage Battery—John G. Jones, Prest and Mgr., Warner Hodges, Vice-Prest., H. H. Hawkes, Secy. and Treas. of company organized to mfre. interchange-

able unit storage battery and also mfg. "hydro," a charging fluid.

Ten., Dallas—"Comfy" Ventilated Auto Seat Co., inctpd. by C. A. Leddy, Paul W. Daether, R. C. Merritt.

Tex., El Paso—Elite Chocolate Coated Baseball Co., increased capital to \$150,000.

Tex., Houston—Texas Belting Co., capital \$10,000, inctpd. by J. P. Moore, A. D. Dyess.

Tex., Ft. Worth—Harrington-Ford Food Co., capital \$5000, inctpd. by H. C. Burke, Jr., B. S. Harrington, S. H. Ford.

Tex., Lufkin—Syrup—P. J. Dunne, Prest. of company organized with \$25,000 capital to install syrup plant.

Tex., San Marcos—Wills Storage Battery Mfg. Co., (lately noted inctpd. with \$12,000 capital, by M. B. Wills and others) will erect plant 50x100 ft.; tile; daily capacity 10 storage batteries. (See Mchy. Wanted—Pig Lead; Rubber Battery Parts; Oak Boxes; Sulphuric Acid; Lead Oxides.)

Tex., Orange—Gildwell Mattress Works will install additional equipment.

Va., East Radford—Overall—Blue Ridge Overall Co., of Roanoke, Va., Isaac Lavine, Treas., reported to establish branch plant.

Va., Hopewell—Tubize Artificial Silk Corp., let contract to Harrison Construction Co., Petersburg, Va., for addition to plant.

Va., Hopewell—Paper—Hummel-Ross Co., will construct addition to plant; 350x100 ft.; brick; Wise Granite Co., Richmond, Contrs. (Lately noted.)

Va., Richmond—Electric Fuseguard Co., capital \$100,000, inctpd. with Wm. D. Ligon, Prest., Charlottesville; J. Gertrude Ligon, Plainfield, N. J., and John R. Ligon, Shipman, Va.

Va., Roanoke—Star Creamery Co., capital \$50,000, inctpd. with C. H. Epperley, Prest.; M. B. Eakin, Secy.

Va., Roanoke—Roanoke Glass Co., capital \$100,000, inctpd. with R. H. Angell, Prest.; C. R. Williams, Secy.

Motor Cars, Garages, Tires, Etc.

Ala., Birmingham—Filling Station, etc.—G. W. Yancey, 8th Ave., will erect garage and filling station.

Fla., Fort Pierce—Automobile Supplies—Stanton Co. purchased 70x200-ft. site, will enlarge plant.

Fla., St. Cloud—Garage—J. B. Ellis let contract to Hollingsworth & Gessford to erect brick garage; to James Sage for concrete work. (Lately noted to erect.)

Fla., Sanford—B. & O. Motor Co., capital \$50,000, inctpd. with P. Jernigan, Prest.-Gen. Mgr.; B. Baggott, Secy.

Fla., West Palm Beach—Florida Agricultural Corp., M. C. Lewis, Mgr., let contract to H. G. Mitchell to build \$10,000 addition to the Service Garage; W. M. King, Archt.

Ky., Bowling Green—City Motor Co., capital \$20,000, inctpd. by C. V. Gannaway, W. O. Arnold and L. J. Turley.

Ky., Louisville—Tires, etc.—R. D. Heman Co. inctpd. by George Yenner, R. D. Heman and Gerald Baker.

Md., Baltimore—Paige—Jewett Co. of Maryland, Calvert Bldg., inctpd. by Joseph S. and Frank S. Mauraur, F. Stanley Saurman.

Md., Havre de Grace—Thompson Motor Co., capital \$25,000, inctpd. by Harry L. Mary H. and William E. Thompson.

Mo., Joplin—Bell Motor Co., W. J. Bell, Mgr., contemplates erecting \$20,000 building at 418 Wall St., purchased site.

Mo., Kansas City—Garage, etc.—Kansas City Auto Top & Body Co., capital \$15,000, inctpd. by Benjamin and Rebecca Friedman, Mike Rafiel.

Mo., Kansas City—Diamond Garage Co., capital \$6000, inctpd. by W. E. Preston, C. B. Knox, I. B. Burns.

N. C., Greensboro—Carolina Motor Club, capital \$120,000, inctpd. by C. W. Roberts, George L. Stansbury and L. H. Mark.

N. C., Salisbury—O'Dell Auto Equipment Co., capital \$25,000, inctpd. by Alfred B. Brady, W. C. and Lizzie O'Dell.

Tenn., Chattanooga—Trucks—White Motor Co., Howard C. Goss, Mgr., Nashville, Tenn., will establish plant; mfre. motor trucks, cabs, cars, etc.

Tenn., Knoxville—Garage—Dan De Wine will erect 100x120-ft. garage, cor. Broadway and Lamar sts., brick and steel construction; approx. cost \$30,000.

Tex., El Paso—Garage—H. M. Gottwald, will erect garage, Bassett's addition.

Tex., Mexia—Mexia Motor Car Co., capital \$20,000, inctpd. by T. B. Benson, E. M. Wilson and W. M. Andrews.

Tex., San Antonio—Filling Station—Gulf Refining Co., Houston, Tex., will erect filling station at Main St. and San Pedro Ave.; soon invite bids.

Va., Richmond—Garage—U. S. Post Office Dept., will occupy garage at 12th and Leigh Sts.; to be erected by J. C. Cheatwood, costing \$45,000.

W. Va., Charleston—Carr-Hays Auto Sales Co., capital \$25,000, inctpd. by J. A. Carr, C. J. Hays and F. C. Major.

W. Va., Charleston—Cox Motor Sales Co., capital \$25,000, inctpd. by Roy, E. M. and O. J. Cox.

W. Va., Fairmont—Garage—F. W. McIntire will erect 50x160 ft. garage and storage building, steel and hollow tile, basement concrete and other floors of hardwood; steel sash and trim; metal doors; construction by owner. (See Mchy. Wanted—Hardwood Floors; Metal Doors; Steel Sash and Trim.)

Railways.

Fla., Plant City—President E. T. Roux, of the Florida Citrus Highlands Railway Co. Plant City, informs the Manufacturers Record that this line is now being built from Lake Garfield, Fla., on the Seaboard Air Line, via Avon Park to Sebring, Fla., about 47 mi.

Railway Shops, Terminals, Roundhouses, Etc.

Ala., Tuscaloosa—Mobile & Ohio R. R. Co., E. E. Norris, V.-P., St. Louis, Mo. reported to establish new mechanical division, erect additions to engine and car repair shop.

Miss., McComb—Illinois Central R. R. Co., E. L. Thompson, Chief Engr., Chicago, Ill. reported to improve coal handling facilities, approx. cost \$60,000.

Mo., Kansas City—Missouri Pacific R. R. Co., E. A. Hadley, Chief Engr., St. Louis, Mo., will erect 120x510-ft. car-repair shop; invite bids.

Okla., Waynoka—Atchison, Topeka & Santa Fe Ry. Co., C. F. W. Felt, Chief Engr., Chicago, Ill., let contract to E. Ware, El Paso, Tex., to erect machine shop; for sash work to Truscon Steel Co., Youngstown, O.

Tex., Wichita Falls—Wichita Falls & Southern R. R. Co., Frank Kell, Prest.-Gen. Mgr., plans construction of roundhouse and machine shop.

Road and Street Construction.

Ala., Albany—City let contract to Standard Road Machinery Co., to repair 2nd Ave.; screened sand and asphalt coating. Address The Mayor.

Ala., Anniston—City let contract to Landt

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Brothers, Anniston, at \$21,000 to \$24,000 for cement sidewalks in certain sections of the City. Address The Mayor.

Ala., Gadsden—City, Ernest Smith, Engr., let contract to Lasley Bros., Chattanooga, Tenn., at \$12,517.85, to pave portions of 3rd and Cherry Sts. (Lately noted.)

Ala., Huntsville—State Highway Dept., Montgomery, Ala., let contract to Williams Bros. Construction Co., Inc., Roanoke, Va., at \$124,056.88 to grade, drain and surface 7.648 mi. Huntsville-Guntersville road; Madison County, Federal Aid Project No. 39 A; gravel and penetration surfacing; A. P. Henderson, Div. Engr., Decatur, Ala. (Lately noted.)

Ala., Moulton—State Highway Dept., Montgomery, Ala., let contract to Stanley & Singer, La Fayette, Ala., at \$179,278.59 for 6.87 mi. Decatur-Moulton road; Lawrence County, Federal Aid Project No. 19-B; macadam base; penetration top; grade and drain; A. P. Henderson, Div. Engr., Decatur, Ala. (Lately noted.)

Ala., Selma—City will pave Jeff Davis Ave., from Broad to Lapsley Sts.; plans laying concrete curb on King St. from Parkman to Furness Aves. Address The Mayor.

Ark., Clarendon—State Highway Dept., Little Rock, will build 15 mi. 18-ft. gravel road from Clarendon to Blackton, Monroe County; invites bids.

Ark., Osceola—State Highway Dept., Little Rock, let contract to Gregory & Wilson, at \$400,000, for 11 mi. asphalt road from Wilson to Osceola, Mississippi County.

Fla., Bushnell—Sumter County will improve roads; contemplates voting in Nov. on \$593,000 bonds. Address County Commrs.

Fla., Crawfordville—Wakulla County will improve roads; voted \$200,000 bonds. Address County Commrs.

Fla., Crestview—Okaloosa County has tentative plans for 25 mi. road from Baker to Alabama State line, through Blackman; \$50,000; Robert French, Civil Engr. Address County Commrs.

Fla., Gainesville—Alachua County, Board of Bond Trustees, Special Road and Bridge Dist. No. 1., will build 2 roads. For full details see Mch. Wanted—Road Construction.

Fla., Jacksonville—City let contract to J. Y. Wilson, to widen and repave St. Johns Ave.

Fla., Jacksonville—City Comsn., plans paving Herschel St. from Barrs to Stockton Sts.

Fla., Kissimmee—Osceola County Commrs. For full details see Mch. Wanted—Road Construction.

Fla., Miami—City plans widening Ocean Drive from 18 to 25 ft., south of Whitman tract; Bob Davidson, City Engr.

Fla., Plant City—Plans paving Baker St.; vote Oct. 31 on \$55,000 bonds; construct storm sewers; vote Oct. 31 on \$10,000 bonds. Address The Mayor.

Fla., Tampa—City Comsn. will widen Florida Ave. between 7th Ave. and Harrison St.; contemplates extending Florida Ave. to Bay.

Fla., Tampa—Hillsborough and Manatee Counties plan reconstructing Bayshore road between Tampa and Bradentown. Address C. T. Friend, Chrmn., Hillsboro County Commrs.

Ga., Atlanta—City plans extending Forrest Ave. from Forrest Ave. School, near Blvd., across Southern Railway belt line into Linwood; 70-ft. street, with underpass at Southern Railway. Address The Mayor.

Ga., Atlanta—City plans extending Fair-

lie St. to railroad yards. Address The Mayor.

Ga., Brunswick—Glynn County Commrs., let contract to T. B. Wright, Atlanta, Ga., at \$125,258.55, for 10.080 mi. road between city limits of Brunswick and Darien Bridge.

Ky., Mount Sterling—City. For full details see Mch. Wanted—Paving.

Ky., Owingsville—Bath County plans rebuilding Midland Trail through County; voted \$300,000 bonds. Address County Commrs.

Ky., Paducah—City. For full details see Mch. Wanted—Paving.

Louisiana—Louisiana Highway Comsn., Baton Rouge, La., will build 4 roads. For full details see Mch. Wanted—Road Construction.

La., Leesville—Vernon Parish Police Jury, will improve roads in Road Dist. No. 6; voted \$370,000 bonds.

La., Monroe—City. For full details see Mch. Wanted—Paving and Sewer Construction.

La., New Roads—Pointe Coupee Parish Police Jury, O. LaCour, Chrmn., let contract to Pickett & Hallior, Opelousas, La., at \$65,000, to grade drain and construct drainage structures on 3½ mi. Batchelor to Latanache road; Project No. 1; also construct concrete bridges; S. N. Garrett, Engr. Lately noted.

Md., Baltimore—City, Dept. of Public Improvements approved following street improvements: widen Montebello Ave. from Belmont to Gorsuch, and Gorsuch to point north of 33rd St.; Bloomingdale road, Liberty Heights and Doldfield Aves., and Reisters-town road from old to new city line.

Md., Baltimore—Paving Comsn., R. Keith Compton, Chrmn., plans improving 22 streets in city and new annex, including Glyndon Ave. from Bayard to Carey Sts.; cement concrete; Weber St. from Light to William Sts.; granite blocks; Kenoak Ave.; from old Pimlico road to Hilltop road; Hilltop road from Kenoa Ave. to Southern Ave.; sheet asphalt.

Plans letting contract to P. Flanigan & Sons, 2600 Harford Road, at \$74,767.10, to pave following: Lombard, from East to Ellwood Ave.; Harvey from Lawrence to Jackson Sts.; Wolfe from Pratt to Baltimore; East Ave. from Boston to Toome Sts.; Ann from Thomas to Eastern Ave.; Calverton Road from Frederick Ave. to Hollins St.

Also plans letting contract to Baltimore Asphalt Block & Tile Co., 1320 N. Monroe St., at \$21,142, to pave Rueckert Ave. from Harford Road to Holder Ave.; all assessment plan.

Md., Baltimore—City, Paving Comsn., R. Keith Compton, Chrmn., plans paving, repaving and re-surfacing Morella road, Etta Vista, St. Helens, Aissa and Kenoak Aves., and Cross Country Blvd.

Md., Baltimore—City. For full details see Mch. Wanted—Road Construction.

Md., Upper Marlboro—State Roads Comsn., 601 Garrett Bldg., Baltimore, Md., let contract to G. B. Mullan, Washington, D. C., at \$121,348, for 4 mi. concrete road along Southern Blvd. from Upper Marlboro, Prince Georges County, toward Benfield, Anne Arundel County.

Miss., Charleston—Tallahatchie County Commrs., Road Improvement Dist. Nos. 4 and 5, let contract to Phillip K. Jones Construction Co., Memphis, Tenn., at \$200,000, to grade, gravel and asphalt surface 19 mi. road from Phillip to Cowart.

Miss., Laurel—City. For full details see Mch. Wanted—Paving.

Miss., Mayersville—Issaquena County plans building greater part of Mississippi River Scenic Highway, north of Warren

County; voted \$230,000 bonds. Address County Commrs.

Miss., Yazoo City—Yazoo County will let contract in about 30 days for constructing 3 bridges and surfacing 4 mi. Panther Creek road; Government Project No. 43; from present terminus of road at Como to Anchorage; concrete. Address County Commrs.

Missouri—State Highway Dept., Jefferson City, Mo., will build 2 roads. For full details see Mch. Wanted—Road Construction.

Mo., Albany—State Highway Dept., Jefferson City, Mo. let contract to J. L. Simmons, La Plata, Mo., at \$20,909.10 to grade and construct necessary bridges on 2 mi. Jefferson Highway near City.

Mo., Cameron—City let contract to Cook-O'Brien Construction Co., at \$15,823.80 for 26-ft. paving n Walnut St. from 3rd to 8th, and at \$2,578.70 for extra width between 3rd and 4th Sts. Address The Mayor. (Lately noted.)

Mo., Cape Girardeau—A. P. Behrens, City Clk., let contract to Anton Haas, Cape Girardeau, at \$7,922.50, to pave Good Hope St., between Sprigg and Pacific Sts.

Mo., Caruthersville—State Highway Dept., Jefferson City, Mo. For full details see Mch. Wanted—Road Construction.

Mo., Hermitage—State Highway Dept., Jefferson City, Mo., let contract to M. E. Gilloz, State Bank Bldg., Monett, Mo., at \$30,648.69 to surface 3 mi. State road from Hermitage westward.

Mo., Jefferson City—City. For full details see Mch. Wanted—Paving.

Mo., Joplin—City, O. P. Mahoney, Commr. of Streets, plans resurfacing Joplin St. from 2nd to 10th Sts.; and to pave roadway of 4th St. from Kentucky Ave. to alley west of Gray Ave.

Mo., Kennett—State Highway Dept., Jefferson City, Mo. For full details see Mch. Wanted—Road Construction.

N. C., Asheville—City plans widening Biltmore Ave., from Pack Square to Coca-Cola Bottling plant; also paving Cornelia St. Address The Mayor.

N. C., Greensboro—City will pave S. Elm St. between railroad and W. Lee St. brick; asphalt top. Address The Mayor.

N. C., Mount Airy—Town, A. V. West, contemplates street paving improvements, including Oak St., and Bannertown hill; I. W. Barber, City Engr.

N. C., Murphy—Clay County Commrs. let contract to H. F. Herbert, Hayesville, N. C., for 3 mi. Tusquette road.

N. C., Murphy—City. For full details see Mch. Wanted—Paving.

N. C., Winston-Salem—For full details see Land Developments.

Okla., Tulsa—Tulsa County Commrs., will build 2 sections of roads. For full details see Mch. Wanted—Road Construction.

S. C. Aiken—Henry Busch, City Clerk—Treas., let contract to Wm. F. Bowe, Jr., Augusta, Ga., at \$40,000 for 18,000 sq. yds. paving, curbs and gutters on Park Ave.; concrete; Sudlow & Ashurst, Engrs., Aiken. (Lately noted.)

S. C. Florence—W. H. Barringer, Mayor, let contract to Southern Paving Construction Co., Chattanooga, Tenn., to pave Galliard, Elm, Colt, W. Evans, Irby Sts., etc. (Lately noted.)

S. C., Fort Mill—Fort Mill Township Highway Comsn., W. B. Meacham, Secy., let contract to J. W. Houseal, Winnsboro, S. C., at \$21,600 for 8 mi. top soil roads from city limits to North Carolina line, and south to Balles' Bridge, connecting York and Lan-

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

caster Counties; H. S. Jaudon Engineering Co., Engr., Elberton, Ga. (Lately noted.)

S. C., Greenville—State Highway Dept., Columbia, S. C., plans building 2 roads; 2½ mi. Kay Bridge, and 4 mi. Dunham Bridge roads; bids until Oct. 4.

S. C., Greenville—Greenville County Supvs. will build 2 roads. For full details see Mchy. Wanted—Road Construction.

Tenn., Athens—R. P. Knight, Mayor, let contract to C. M. Galloway & Co., Lenoir City, Tenn., to pave Madison, Ingleside Aves., Washington and Jackson Sts.; concrete. (Lately noted.)

Tenn., Chattanooga—For detail see Land Developments.

Tenn., Chattanooga—For full details see Land Development.

Tenn., Knoxville—City will macadamize road between Knox County Industrial School and Middlebrook pike. J. W. Spradlin, Supt. of Roads.

Tenn., Newport—State Highway Dept., Nashville, Tenn., approved plans for 10.02 mi. road in Cocke County from Newport to North Carolina line.

Tex., Alvarado—City will improve streets; voted \$19,000 bonds. Address The Mayor.

Tex., Amarillo—Potter County plans improving State Highway No. 5; State Highway Dept., Austin, approved additional \$65,900 aid; Ray C. Johnson, County Judge; Nagle-Witt-Rollins Engineering Co., Engr., Amarillo.

Tex., Barstow—Ch. Engr., Bureau of Public Roads, Washington, D. C., approved plans for 12.5 mi. 16-ft. gravel road on Bankhead Highway, Ward County; \$80,748; R. E. Booker, State Res. Engr., Monahans, Tex.

Tex., Beaumont—City contemplates paving 40 mi. of streets. Address The Mayor.

Tex., Beaumont—Jefferson County plans 7.4 mi. concrete pavement on Voth Road, State Highway No. 40; \$254,000; J. B. Peek, County Judge; A. C. Love, County Engr.

Tex., Blanco—Blanco County, Wm. Martiny, County Judge, plans expending \$102,500 to gravel surface road; W. Schofield, Engr.

Tex., Bonham—Fannin County. For full details see Mchy. Wanted—Road Construction.

Tex., Brownsville—State Highway Dept., Austin, Tex., approved plans for following: 10.48 mi. 18-ft. concrete road on State Highway No. 12, Cameron County, between San Benito and Brownsville; \$400,000; receives bids in about 30 days.

10.32 mi. 18-ft. concrete road on State Highway No. 12, Cameron County, between Harlingen and Hidalgo County line; \$405,500; O. C. Dancy, County Judge; W. O. Washington, County Engr.

Tex., Clarksville—Roy Goodman, City Clk., let contract to McGuire & Cavender, Kansas City, Mo., at \$50,000, for 29 blocks 6-in. plain cement concrete pavement; Pane Y. Creager, City Engr.

Tex., Clarksville—Ch. Engr., U. S. Bureau of Public Roads, Washington, D. C., approved plans for 2.51 mi. gravel road on State Highway No. 5, Red River County; Federal Aid Project No. 299; \$18,000; R. J. Williams, County Judge; J. B. Riegan, County Engr.

Tex., Corpus Christi—Nueces County plans building 4 sections Corpus Christi-Robstown-Bishop road, State Highway No. 12 as follows:

Precinct No. 1—1½ mi. shelled road from end of Leopard St. paving to Dunlap lane, then to Texas-Mexican Ry.

Precinct No. 4—11.17 mi. road from Texas-Mexican Ry. crossing to 2½ mi. east of Robstown, \$192,873.91.

Robstown Sec.—10.42 mi. road from Texas-Mexican Ry. crossing west to and south from Robstown; \$183,430.13.

Precinct No. 3—11.74 mi. road from south terminus of above section to Kleberg County line, through Bishop; \$211,914.01 Calvin E. Cocke, County Engr. (Lately noted.)

Tex., Dallas—Dallas County Commrs. Ct. For full details see Mchy. Wanted—Road Construction.

Tex., Eastland—Eastland County, plans building road on State Highway No. 1; State Highway Comsn., Austin, allotted \$11,000 aid; C. R. Starnes, County Judge; W. R. Eccles, County Engr.

Tex., Edinburg—Hidalgo County plans building 14 mi. road on State Highway No. 12, connecting Brownsville with San Antonio on north, and with Houston on east; concrete or asphalt surfacing; \$600,000; Project No. 301. Address County Commrs.

Tex., Eldorado—Schleicher County will build 9.75 mi. 16-ft. asphaltic macadam road on Sonora Road, State Highway No. 4; \$120,000; Federal Aid granted; J. P. Nell, County Engr.

Tex., El Paso—City plans expending \$90,000 to pave 17½ blocks of streets, including Frutas, Memphis, Lebanon; also contemplates re-paving Pershing Drive from Hastings to Stevens Sts.; \$21,500; W. C. Stewart, City Engr.

Tex., El Paso—For full details see Land Developments.

Tex., Fort Worth—Tarrant County. For full details see Mchy. Wanted—Road Construction.

Tex., Freeport—City will improve streets. Address The Mayor.

Tex., Hillsboro—Hill County plans building 9.91 mi. State Highway No. 2-A, from Precinct No. 1 line to Johnson County line; \$33,918 additional Federal Aid. Address W. L. Wray, County Judge, Hillsboro.

Tex., Groesbeck—City. For full details see Mchy. Wanted—Paving and Sewer Construction.

Tex., Houston—City. For full details see Mchy. Wanted—Paving.

Tex., Houston—Harris County Commrs. will improve roads; vote Nov. 7 on \$6,000,000 bonds; improve ship channel; vote Nov. 7 on \$3,000,000 or \$4,000,000 bonds. (Lately noted.)

Tex., Kaufman—Kaufman County will build east and west road across Kaufman County; \$377,000; Federal Aid to furnish \$107,000; A. R. Losh, U. S. Dist. Engr., Fort Worth. Address County Commrs.

Tex., Lagrange—U. S. Bureau of Public Roads, Washington, D. C., approved plans to gravel surface 12.87 mi. State Highway No. 3-B, Brenham-Carmine Road section; Fayette County, Federal Aid Project No. 286; \$132,865.89; A. Schlafle, County Engr., Schulenburg, Tex.; J. P. Ehlinger, County Judge, Lagrange.

Tex., Lufkin—Angelina County Commrs. let contract to J. S. Moore & Sons, Lufkin, for 9.7 mi. road on State Highway No. 7, between Lufkin and Huntington; rock and gravel surface; asphalt topping; concrete bridges and culverts; G. R. Abney, County Engr. (Lately noted.)

Tex., Mason—Mason County Commrs., let contract to Fred. P. Holt, Austin, Tex., at \$76,096.31 to grade, drain and construct drainage structures on 14.25 mi. State Highway No. 9, from Mason north to McCullough County line; J. T. Banks, County Judge; Joe Gresham County Engr. (Lately noted.)

Tex., McKinney—Collin County let contracts for following:

To D. H. Purvis & Son, Fort Worth, at \$70,000, to surface 20 mi. road in Plano Road Dist. No. 29; 55,000 cu. yds. gravel and rock.

To Glenn Stiff, McKinney, Tex., at \$32,500, to surface 10 mi. road in Pike Road Dist. No. 18; 27,500 cu. yds. 5-in. rock base and 3-in. gravel top.

To Lee Lancy, Celina, Tex., at \$14,000 to re-surface 18-mi. road in Celina Road Dist. No. 7; 5-in. gravel top.

To Glenn Stiff, McKinney, Tex., at \$16,800, to surface 6 mi. road in Prosper Road Dist. No. 27; 7-in. rock base; 5-in. gravel top; County to furnish all surfacing; O. T. Murray, County Judge; F. W. Cawthorn, County Engr.

Tex., Palestine—Anderson County plans road improvement; contemplates voting on \$1,500,000 bonds. Address County Commrs.

Tex., Palo Pinto—Palo Pinto County plans following:

6 mi. State Highway No. 1, from Metcalf Gap to ½ mi. east of Eagle Creek; macadam surface; reinforced concrete bridges; \$191,500.

4 mi. 18-ft. road on Bankhead Highway; concrete.

Let contract to Texas Road Co., 1303 Bush Bldg., Dallas, Tex., at \$207,483.21 to surface 10.9 mi. State Highway No. 1; crushed stone; steel and concrete bridges and culverts; contract for bituminous topping to be let later; E. L. Pitts, County Judge; G. W. Courter, County Engr.

Tex., Paris—Lamar County plans following: 1.65 mi. concrete pavement on State Highway No. 5, from end of present Federal Aid Project toward Red River; \$41,000.

2.9 mi. concrete paved road on State Highway No. 5, west of Paris; \$76,800; W. L. Hutchinson County Judge; W. M. Fooshee, County Engr.

Tex., Richmond—Fort Bend County plans 15.3 mi. State Highway No. 3, from Richmond to Harris Co. line; gravel surface; bituminous topping; \$296,538; project financed by bond issue and Federal Aid; C. D. Myers, County Judge, Richmond; C. H. Kendall, County Engr., Sugarland, Tex.

Tex., Rising Star—City. For full details see Mchy. Wanted—Paving.

Tex., San Angelo—Tom Green County Commrs. will build 15 mi. road on Del Rio-Canadian Highway No. 4. (Lately noted.)

Tex., Sanderson—Terrell County plans building 61.5 mi. 16-ft. gravel road on State Highway No. 12; Emerson-Del Rio road, from Pecos County line to Val Verde County line; \$400,173; G. J. Henshaw, County Engr., Sanderson; D. E. H. Manigault, Div. Engr., El Paso.

Tex., Sherman—J. B. Wilson, Mayor, receives bids for 3 mi. street paving; Kaw Paving Co., Topeka, Kansas, low bidder.

Tex., Sinton—San Patricio County plans surfacing 17.94 mi. State Highway No. 9, from Nueces County line to Road Dist. No. 5 line; 1 3-8 in. bituminous topping; \$121,500; J. C. Houts, County Judge, Sinton; A. C. Pancoast, County Engr., Beeville, Tex.

Tex., Vernon—Wilbarger County will build 15 mi. link in Bankhead Highway; A. B. Losh, U. S. Dist. Engr., Fort Worth.

Tex., Vernon—State Highway Dept., Austin, Tex., approved plans for 2.24 mi. 18-ft. concrete road on State Highway No. 5 west from Oklaunion, Wilbarger County; \$88,625; E. L. McHugh, County Judge; John B. Nabors, County Engr.

Tex., Vernon—State Highway Dept., Austin, Tex., approved plans for 5.69 mi. State Highway No. 5, east and west of Vernon, Wilbarger County; \$178,755; E. L. McHugh, County Judge; J. B. Nabors, County Engr.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Va., Alexandria—City contemplates expending \$14,000 for street paving including Queen from Payne to West and West to Harvard; gravel roadway; West from King to Cameron and Cameron to Queen; bituminous macadam; Harvard, from King to Cameron, etc. Address City Mgr. Rich.

Va., Grundy—State Highway Dept., Richmond, Va., plans building state road between Raven and Grundy, connecting Graham-Grundy Highway.

Va., Lynchburg—City. For full details see Mch. Wanted—Paving.

Va., Suffolk—State Highway Comsn., Richmond, Va., let contract to Royer & Ferguson, High Point, N. C., for 4 1/2 mi. concrete road from Suffolk to Franklin.

West Virginia—State Road Comsn., Charleston, W. Va., will build 2 roads. For full details see Mch. Wanted—Road Construction.

W. Va., Charleston—City. For full details see Mch. Wanted. Paving.

W. Va., Martinsburg—City. For full details see Mch. Wanted—Paving.

Sewer Construction.

Ark., Little Rock—For full details see Mch. Wanted—Sewer Construction.

Fla., Plant City—For full details see Road and Street Construction.

Fla., Ponchatoula—For full details see Water Works.

Ga., Augusta—For full details see Mch. Wanted—Sewer Construction.

Ga., Decatur—City J. S. Looney, Mgr. let contract to Dysard Construction Co., Atlanta, Ga. for constructing approx. 7 mi. of 8 in. sanitary sewers; B. F. Williams, City Engr. (Lately noted.)

La., Monroe—For full details see Mch. Wanted—Paving and Sewer Construction.

Md., Baltimore—For full details see Mch. Wanted—Drain Construction.

Md., Baltimore—City, Milton J. Ruark, Division Engr. of Sewers, 311 Courtland St., opened bids for construction of storm water contract No. 46, Consolidated Engr. Co., 243-269 Calvert Bldg., lowest bidder at \$26,061.28.

Mo., Bunceton—City contemplates expending about \$35,000 on construction of water works system. Address The Mayor.

Mo., Plattsburg—City let contract at \$58,805 to Burt & Tripp, Hutchinson, Kans., for construction of sewers and disposal plant. (Lately noted.)

Mo., Springfield—City, Geo. W. Culler, Engr. in charge, will construct disposal plant, cost about \$25,000. (Lately noted.)

N. C., High Point—For full details see Mch. Wanted—Sewer and Water Extension.

N. C., Winston-Salem—For full details see Land Developments.

Tenn., Chattanooga—For full details see Land Developments.

Tex., Groesbeck—For full details see Mch. Wanted—Paving and Sewer Construction.

Tex., Laredo—City will soon invite bids for construction of drainage system preliminary to paving streets. Address The Mayor.

Va., Alexandria—City contemplates constructing 24-in sewer on King St. Ext., in George Washington Park, and trunk sewer in northeastern section of city. Address City Manager Rich.

Shipbuilding Plants.

La., New Orleans—Algiers Dry Dock & Ship Repair Co., Inc., Edgar Berthaut, Prest., reported to build floating all-steel dry dock,

capable of accommodating vessels up to 10,000 deadweight tons, to be known as dock No. 1; 250x54 ft. with hydraulic trunks 26 ft. high; operated by electric-driven centrifugal pumps; approx. cost \$400,000; also plans increasing capital to \$500,000.

Telephone Systems.

D. C., Washington—Chesapeake & Potomac Telephone Co., G. W. Warren, Div. Mgr., 5 Light St., Baltimore, Md. reported to expend \$300,000 for improvement and enlargement of plant.

Okla., Tulsa—For full details see Water Works.

Tex., Elgin—Elgin Independent Telephone Exchange, W. F. Moody, Mgr., Thrall, Tex., will remodel and improve system.

Tex., San Antonio—Southwestern Bell Telephone Co., F. M. Hoag, Dist. Mgr.; reported to expend \$2,000,000 on improvements including erection of Laurel Heights exchange building at cor. Breeden and Mistletoe Aves., also extend and improve local system. (Previously noted.)

Textile Mills.

Ala., Huntsville—Merrimack Mfg. Co., let contract to Baxter Bros. to construct cloth inspection room, to cost \$20,000; Lockwood-Greene Co., Archts., Atlanta, Ga. (Lately noted.)

Ga., Athens—Star Thread Mills, will erect 2-story addition to plant; mill construction; steel sash and cast iron supporting columns; install pickers, warpers, reels, etc.; Robert & Co., Engrs., Atlanta, Ga.

Ga., Rome—McLin Textile Corp., changed name from McLin Cotton Mills, Julin Cumming, Prest., increased capital to \$150,000, will construct plant.

Mo., St. Louis—Canvas Products Co., capital \$200,000, inceptd. by A. E. Meyer, E. H. Schultz, L. L. Mueller.

N. C., Greensboro—House Dresses, etc.—Benjamin B. B. Phillips Mfg. Co., lately noted inceptd. with \$25,000 capital, organized with E. P. Wharton, Prest.; B. B. Phillips, Secy.; has plant for mfr. percale house dresses and men's handkerchiefs; will install sewing machines.

S. C., Camden—Wateree Mills let contract to General Electric Co., 119 W. 40th St., New York, for electrification of mills; Lockwood-Greene Co., Archts., Atlanta, Ga.

W. Va., Princeton—Princeton Hosiery Mills Co., Lowring G. Bowling, Prest., reported to merge with Hetrick Hosiery Mills Co., Valhalla, S. C.; will construct building 50x150 ft.; 2 story; brick, steel and glass; average daily capacity 300 doz. prs. stockings; will move equipment of Hetrick Mills, consisting of 62 knitting machines, dye and finishing plant and paper box factory with daily capacity of 3000 boxes, will also install machines for silk hosiery.

Water Works.

Ala., Birmingham—For full details see Electric Light and Power Plants.

Fla., Clearwater—For full details see Machinery Wanted—Water Works.

Fla., Jacksonville—City let contract at \$26,000 to R. J. Galespie, for covering aerating basin at city's waterworks at Main and First Sts.

Fla., Jacksonville—City, Frank H. Owen, Commr. of Utilities, accepted recommendation of Joseph E. Craig, Civil Engr. for improvements to present hard and soft water supply; will construct dam to furnish hydro-electric power to pump water from St. Mary's river to Jacksonville, distance of 25 mi.; estimated cost \$1,500,000. (Lately noted.)

Fla., Marianna—City, H. A. Boides, Clk., will extend and improve water works system; will vote on \$25,000 bonds.

Fla., Palatka—For full details see Mch. Wanted—Water Works.

Ga., Atlanta—For full details see Mch. Wanted—Steam Pumps.

La., De Quincy—City will construct light and water plant, voted \$120,000 bonds. Address The Mayor. (Lately noted.)

La., Plaquemine—City will construct water and light plant; votes Oct. 10 on \$150,000 bonds. Address The Mayor.

La., Ponchatoula—City will construct water works and sewer system; voted \$65,000 water works bonds, \$65,000 for sewers. Address The Mayor.

Mo., St. Charles—City will build and equip water works plant; will vote on \$65,000 bonds. Address The Mayor.

Mo., Sullivan—City will construct water works system, voted \$30,000 bonds. Address The Mayor.

N. C., Greensboro—City, P. C. Painter, Mgr. will soon invite bids for 10,000,000 gal daily capacity iron pipe line to be built from Reedy's Fork in connection with proposed water supply system. (Lately noted.)

N. C., High Point—For full details see Mch. Wanted—Sewer and Water Extension.

N. C., Winston-Salem—For full details see Land Developments.

Okla., Tulsa—Water Comms., A. J. Rudd, Chrmn., opened bids for construction of major portion of Spavinaw water supply project, following are the low bidders:

Contract No. 1—construction of 60 mi. of telephone line from Tulsa to Spavinaw, D. E. Emmons Co., Vinita, Okla., at \$11,606.

Contract No. 2—clearing site of Spavinaw Lake, Standard Paving Co., Tulsa, Okla., at \$20,250.

Contract No. 3—Spavinaw Dam, Standard Paving Co., Tulsa, at \$78,610.

Contract No. 4—construction of 60-in. reinforced concrete conduit, Byrne Bros., at \$1,660,266.

Contract No. 5—construction of tunnel, Byrne Bros., at \$335,020.

Contract No. 6—construction of 54-in. concrete conduit, Byrne Bros., at \$1,298,896.

Contract No. 7—construction of Mohawk reservoir, A. M. Davies & Sons, Tulsa, at \$105,956.

Contract No. 8—cast iron or steel pipe, U. S. Cast Iron Pipe and Foundry Co., at \$227,977.40.

Contract No. 10—laying cast iron or steel pipe, Standard Paving Co., Tulsa.

Contract No. 11—construction of high pressure reservoir, Taylor-Dewey Co., Allentown, Pa.; total estimated cost \$5,500,000; Trammell & Holway, Engrs., 229 Kennedy Bldg., Tulsa, Daubney & Maury, Consult. Engrs., 1446 Monadnock Block, Chicago, Ill. (Lately noted.)

S. C., Laurens—Laurens Road Water Co., capital \$6000, inceptd. with W. D. Parrish, Prest.; T. C. Gower, Secy., to construct water main from city to end of highway on Laurens Road.

Tex., Austin—City, Walter L. Ayres, Park Supt., interested in improvements to Barton Springs.

Tex., Corsicana—City Comsn. let contract at \$22,000 to McCall & Moon, Waco, for construction of filtration plant at water works dam.

Tex., El Paso—For full details see Land Developments.

Tex., Ft. Worth—City, J. C. Lord, Water Comsn. will extend and improve water works systems of Ft. Worth, Polytechnic and Sycamore Heights, construct water

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

tower at Eighth Ave. and Cappel St., replace present ma'ns with larger ones; contemplate voting Nov. on \$750,000 bonds; John B. Hawley, Consit. Engr. (Lately noted.)

Tex., Kenedy—City, John W. Thames, Mayor, will install several miles of 6-in. cast iron water pipe extension, also a 50,000 tank, fire hydrants and an air compressor.

Tex., Vickery—City will probably improve water works system, will vote on bonds. Address The Mayor.

Tex., Winters—City, J. Frank Paxton, Mayor, opens bids Oct. 6 for water works improvements, involving 13,100 cu. yds. embankment, 2600 sq. yds. rip rap, 150 cu. yds. stone fill, etc.

Va., Tenn., Bristol—City, S. G. Keller, City Mgr., rejected bids for construction of filtration plant; will construct with city forces; Robt. L. Blevins, in charge. (Lately noted.)

Woodworking Plant.

Ga., Cedartown—Headings—Chamber of Commerce, R. O. McCord, Secy., interested in establishing mill for mfr. of keg and barrel headings. (See Mch. Wanted—Heading Mill.)

Miss., Utica—Crates, etc.—Utica Box Co., H. J. Wilson, Mgr., let contract for \$15,000 plant, mill construction; install veneer and crate making mch. costing about \$25,000; majority purchased; mfr. vegetable crates and packages.

S. C., Columbia—Hardwood—Hoffman Bros. Co., Fort Wayne, Ind., F. E. Hoffman, Prest., will erect plant for mfr. of hardwood used in furniture, musical instruments, etc.

Tenn., Chattanooga—See Motor Cars, Garages, Tires, etc.

Tex., Waco—Collapsible Trestle—Trautschold & Pellow, organized by R. E. Pellow and C. M. Trautschold, will mfr. collapsible trestles used for tables, etc.

FIRE DAMAGE

Ala., Bessemer—Chas. Moreno's store and dwellings; loss \$10,000.

Ala., Chapman—W. T. Smith Lumber Co.'s plant; loss between \$50,000 and \$75,000.

Ala., Selma—A. J. Isaacson's warehouse, Water and Lawrence Sts.; Wilhite-Cromer Livery Stables.

Fla., Pass-A-Grille—Pass-A-Grille Hotel; loss \$150,000. Address The Proprietor.

Fla., Tampa—James Stanford's dwelling on 13th St., Belmont Heights.

Ga., Adel—C. W. Carter's planing mill; loss \$30,000.

Ga., Atlanta—S. S. Kress & Co.'s building, Whitehall St.; Leonard, Fitzpatrick & Mueller's store; Verner's Restaurant; Viaduct Hotel; Atlanta National Bank Bldg.

Ga., Columbus—Columbus Electric & Power Co.'s compressor and condenser house; loss several thousand dollars.

Ga., Savannah—J. G. Martin's dwelling on Skidaway Road near Savannah.

Ky., Ashland—Crump & Field and Van Moose-Adams Co.'s buildings.

Ky., Corydon—Elam Wilson, B. M. Powell and R. A. Harnell Co.'s stores.

La., Lafayette—People's Cotton Oil Co.'s warehouse.

La., New Orleans—Wm. Brand's tenement, 1021 Erato St.; Mrs. Albert Butler's home, 1152 Magazine St.; dwelling, 1179 Magazine

St., J. H. Labesque, Agt.; Lake Bros. Mfg. Co.'s building, 1100 Magazine St.

Miss., Laurel—Marathon Lumber Co.'s dry kilns, etc.; loss from \$75,000 to \$100,000.

Mo., Klondike—Tavern Rock & Sand Co.'s power plant; loss \$10,000.

N. C., Statesville—R. O. Pyles saw mill; loss not estimated.

S. C., Camden—Louis I. Gulon's ginnery; loss \$8000.

S. C., Chester—Louis Budget's dwelling on McLure St.

S. C., Greenville—H. Smith's dwelling; occupied by Mrs. Viola Holder.

S. C., Smoaks—John B. Smith's residence.

S. C., Walterboro—Hendersonville rural school. Address School Board.

Tex., Arlington—Arlington Hotel, owned by P. T. Reddy; loss \$10,000.

Tex., Brenham—Wangemann-Reichardt Co.'s coffee roasting plant; loss \$100,000.

Tex., Deweyville—Peavy-Moore Lumber Co.'s saw mill and power house; loss \$200,000.

Tex., Sweetwater—East Ward School. Address Board of Education.

Tex., Tamina—Grogan & Cochran Lumber Co.'s commissary, drug store and office; loss \$18,000.

Tex., Tamina—Grogan & Cochran Lumber Co.'s commissary, drug store and office; loss \$18,000.

Tex., Tehuacana—Municipal water works plant. Address The Mayor.

Va., Portsmouth—Model Bakery, cor County and Pine Sts.

W. Va., Logan—Garage owned by Harry Ellis; loss from \$10,000 to \$15,000.

W. Va., Parkersburg—School building. Address Harris District Board of Education.

W. Va., Martinsburg—W. L. Shepherd's residence off Winchester Pike south of Martinsburg.

W. Va., Spencer—Methodist Protestant Church parsonage, Rev. S. A. Steele; Don Combs' dwelling.

Damaged by Explosion.

Mo., St. Louis—Three-story building at Locust and Compton Sts., occupied by Independent Fire Co., Firestone Tire Co., Ferrier Automotive Co., Authorized Motor Parts Co., Kardell Motor Co., Racine Rubber Co., Mississippi Valley Rubber Co., United States Tire Co.; total loss estimated at \$80,000.

BUILDING NEWS

BUILDINGS PROPOSED

Apartment Houses.

Ark., Little Rock—August Kahler will erect 1-story dwelling, 2318 N. Palm St.; \$5000; remodel dwelling, 2005 Gaines St.; \$3000; erect \$6000 frame warehouse, E. 11th St.; also erect \$10,000 2-story stucco apartment house, 1710 W. 24th St.

D. C., Washington—Edmund Flynn, Southern Bldg., Penna. Ave., will erect \$75,000 building, Harvard St. and Lanie Place; 3 stories; 79x36 ft.; brick and reinforced concrete; 6 suites; Edw. L. Palmer, Jr., Archt., 513 N. Charles St., Baltimore.

D. C., Washington—Harry Wardman, 1430 K St., N. W., will erect 11-story building, 13th and I Sts., N. W.; reinforced concrete; stone and rough-faced brick; 97x138 ft.; 13,700 sq. ft.; 2 elevators; 230 apartments of 1 and 2 rooms, kitchenette and bath; stores on ground floor; building and ground to cost about \$1,100,000.

Fla., Daytona—R. L. Selden will erect 3-story building; brick or stucco; furnace heating system and servants' quarters in basement; six 5-room apartments; porches.

Fla., Miami Beach—S. D. Glasgow, 85 N. E. 19th St., Miami, will erect \$18,000 building, Ocean Drive near 6th St.; 3 stories; reinforced concrete and hollow tile; Georgia pine floors; L. Brumm, Archt., Miami; owner builds. (Lately noted.)

Ga., Atlanta—Woolfson Realty Co. will erect 3 buildings on Houston St.; \$6000 each; 2 stories; brick veneer.

Miss., Vicksburg—H. H. Havis, Archt., John Hennessey, and others, will erect Aeolian Apartment Bldg., Clay and Cherry Sts.; \$375,000; 49 apartments and 2 stores; 3 and 4 stories; plans and supervision of construction by Mr. Havis; George I. Miller & Co., Atlanta, arranging finances.

Mo., Kansas City—Buford G. Mitchell, 429 W. 57th St. terrace, will erect 4-story and basement building, 44th St. and Mill Creek

Parkway; \$125,000; brick and stone; 16 apartments of 6 rooms and 2 baths each; day labor. (Lately noted.)

Tenn., Memphis—Mrs. Emily Frazier will erect \$15,000 building, 2183 Elzey St.; brick veneer; two 6-room and one 3-room apartments; individual heating plants; J. Frazier Smith, Archt.

Tenn., Memphis—A. B. Lanning will erect \$50,000 building, 20 Parkview; 90 rooms; steam heat, \$5000; also seven 1-story brick stores, 904-16 Poplar St.; \$15,000.

Tex., Dallas—Ballard Burgher will erect \$14,000 building, 4100-02 Gilbert St.; 20 rooms; 4 apartments; brick veneer.

Tex., Dallas—J. L. French will erect \$10,000 building, 5637-39 Worth St.; 10 rooms; brick veneer.

Association and Fraternal.

Ark., Little Rock—Grand Lodge, A. O. U. W., C. C. Kavanaugh, Chrmn. Bldg. Comm., plans 50-ft. addition to building; 11 stories; 90 rooms; \$165,000.

Ky., Paducah—Paducah Lodge of Elks plans \$200,000 building, 6th and Jefferson Sts.; gymnasium, swimming pool.

N. C., Durham—Masonic Building Corp., will erect \$200,000 building; 60x100 ft.; 6 stories; fireproof; steel frame; slag roof; concrete, oak and composition floors; hollow fireproof tile; ornamental terra cotta; metal doors; wire glass; steel sash and trim; mail chutes; vault lights; ventilators; low pressure steam heat; electric lights; 2 electric elevators; Milburn, Heister & Co., Archts., Union Savings Bank Bldg., Washington, D. C., and Durham; bids opened Oct. 9. (Previously noted.)

Tex., San Antonio—Bexar Lodge of Perfection No. 9, Scottish Rite Masons; \$800,000 Cathedral; 160x240 ft.; 110 ft. high; ground and auditorium floors; fireproof; steel frame; stone facing; Barrett spec-

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

fication roof with promenade tile decking; marble, tile, cement and hardwood floors; combination steam heating and ventilating plant; Herbert M. Greene Co., Archts., North Texas Bldg., Dallas; steel frame, foundation and first floor were constructed by owner; Ralph H. Cameron, Supervising Archt., P. O. Box 1063, San Antonio, takes bids until Oct. 17 for completion of building; contracts awarded for terra cotta, cut stone, brick, tile and concrete materials. Address Mr. Cameron. (Lately noted.)

Bank and Office.

Ky., Louisville—Louisville Branch, Federal Reserve Bank of St. Louis, W. P. Kinchele, Mgr. Director, will erect 2-story addition to building; \$150,000; 52½x105 ft.; D. X. Murphy & Bro., Archts. (Previously noted.)

La., New Orleans—Board of Trade will alter and erect third story to building on Natchez St.; new front, reinforced concrete to second floor, balance brick; cement facing; hollow tile for side and court walls; heating, electrical work, etc.; addition, 58x116 ft.; Favrot & Livaudais, Archts., Hibernia Bank Bldg.

Mo., Cameron—State Farmers Mutual Tornado Insurance Co. will construct stone front to building and erect second floor; \$10,000; brick; 25x60 ft.; tin roof; tile floor; C. F. McClean, Archt.—Constr. Supervisor; day work. (Lately noted.)

Tex., Brenham—First National Bank will erect \$75,000 to \$80,000 building; 36x82 ft.; brick, stone, concrete and steel; vaults; Sanquinet, Staats & Gottlieb, Archts., Fort Worth and Houston. (Lately noted.)

Va., Richmond—Planters National Bank rejected bids to erect branch building on Broad St. near First St., and will call for new bids in few days.

Churches.

Ala., Gadsden—First Baptist Church, O. R. Hood, Prest., Men's Club, plans building. Okla., Pawhuska—Christian Church will erect \$50,000 building. Address The Pastor.

Ala., Tuskegee—Methodist Church, C. A. DeBardeleben, Chrmn. Bldg. Comm., plans Sunday school addition; 6 rooms.

Fla., Bradentown—Methodist Church, Colorado, will erect \$15,000 building; tile and stucco; A. C. Price, Archt.

Fla., Graceville—Methodist Church will erect \$25,000 building; probably convert present building into parsonage. Address The Pastor.

La., New Orleans—Central Baptist Church, 139 Jefferson Davis Parkway, Rev. W. A. Jordon, Pastor, plans \$75,000 building, Jefferson Davis Pkwy. and Cleveland Ave.; brick and stone; seat 1200.

La., Scott—St. Peter and Paul Catholic Church, Rev. Father Montellard, Pastor, will erect building.

Mo., Chillicothe—Warren Roberts is preparing plans for church; R. C. Snodgrass, interested.

Miss., Corinth—Filmore Street Presbyterian Church will erect Sunday school addition to accommodate 600; Gothic design; brick; 2 stories and basement; hardwood interior finish; heating plant in basement; H. T. McGee, Archt., Madison Avenue Bldg., Memphis, Tenn.

N. C., Gastonia—Lutheran Chapel Church, East Gastonia, Rev. G. H. C. Park, Pastor will erect building.

S. C., Greenville—Central Baptist Church, C. O. Hobbs, Chrmn. Bldg. Comm., will erect \$150,000 building, Lloyd and Pinckney Sts.; 97.10x91.2 ft.; Bedford granite; 2 stories

and semi-basement; auditorium to seat 1500; J. J. Baldwin, Archt., Anderson. (Previously noted.)

S. C., Spartanburg—Bethel M. E. Church, W. G. Willard, Chrmn. Bldg. Comm., will erect \$12,000 Sunday school addition; 40x90 ft.; brick veneer; 2 stories; J. Frank Collins, Archt. (Lately noted.)

Tenn., Memphis—A. M. E. Zion Church, Rev. W. A. Ray, Pastor, 811 Mississippi Ave., will erect building, Williams and Porter Sts.; 48x80 ft.; concrete and brick; steam heat; tile or slate roof; plain or Gothic windows; H. T. McGee, Archt., 622 Madison Ave. Bldg.; bids opened Oct. 4. Address Mr. Ray. (See Mch. Wanted—Heating Plant; Post (Iron); Beams (Steel); Roofing; Windows.)

Tex., El Paso—Baptist Church, Dr. W. R. Smith, 504 Martin Bldg., will alter auditorium and erect third floor addition; 50x120 ft.; steam heat for entire building; hollow fireproof tile; hardwood floors; interior tile for baptistry; Guy Frazer, Archt.

Tex., Gonzales—Presbyterian Church plans \$30,000 building. Address The Pastor.

Tex., Gonzales—Baptist Church will erect addition; M. L. Waller & Co., Archts., San Antonio; Newman Bros., Kennedy, low bidders. (Lately noted.)

Va., Marion—Presbyterian Church will erect building. Address The Pastor.

Va., Newport News—Ivy Memorial Baptist Church, Kecoughton, will erect \$20,000 building near Hampton Roads Blvd. Address The Pastor.

City and County.

Fla., Tampa—Grandstand—City will vote on \$30,000 bonds for concrete grandstand in Plant Park. Address The Mayor.

Ga., Augusta—Auditorium—Library, etc.—City plans \$150,000 auditorium and library and \$50,000 nurses' home at University Hospital; \$200,000 available from J. B. White bequest. Address the mayor.

Ky., Bellevue—Administration Building—City, C. W. Dorsey, Mayor, votes Nov. 7 on \$40,000 bond issue for administration building. (Lately noted.)

Mo., Springfield—Camp Buildings—City, Geo. W. Culler, Engr., will erect keeper's lodge, dining room and cooking pavilions in Long Memorial Park for tourist camp; stone; cement floors; Spanish tile roofs; Geo. F. Reed, Archt.; day labor; construction begun.

N. C., Wilson—Town Hall, etc.—Wilson Board of Commrs., Graham Woodard, Chrmn. Finance Comm., receives bids until Oct. 9 for changes in front of town hall, fire dept. and police station and installation of complete heating plant for buildings.

Okla., Chickasha—Alms House—Grady County, W. T. Cloud, Clk., will erect alms house near Chickasha; E. H. Eads, Archt., 417 First National Bank Bldg.; bids opened Oct. 2.

Tex., Strawn—City Hall—City will erect city hall; \$29,000 bonds available. Address The Mayor.

Dwellings.

D. C., Washington—National Capitol Realty Co., C. H. Morgan, Mgr., 722 Bond Blvd., will erect 10 dwellings, Longfellow Terrace; 1½ stories; 38x26 ft.; frame; \$80,000.

D. C., Washington—J. E. Sohl, 1108 16th St., N. W., prepared plans for \$40,000 dwelling, 16th St., N. W.; 2 stories, attic and cellar; brick and stone.

D. C., Washington—Harry A. Kite, 1514 K. St., N. W., will erect 10 dwellings on

Massachusetts Ave. between 15th and 16th St., S. E.; \$50,000; 18x30 ft.; brick; slag roofs; pine floors; hot water heat; electric lights; A. H. Sonnemann, Archt.; owner builds. (Lately noted.)

Fla., Bradentown—W. L. Kimball will erect English type dwelling; tile and stucco or tile and face brick; A. C. Price, Archt.

Fla., Bradentown—W. E. Payne will erect dwelling on W. Manatee Ave.; A. C. Price, Archt.

Fla., Miami Beach—D. Ray Meade, Bay View Apts., Miami; 1 bungalow and 2 two-story Spanish type dwellings, Bay Rd., Belle View sub-division; August Geiger, Archt., Miami; owner builds.

Ga., Atlanta—Renefroe-Thomson has permit to erect two 1-story brick veneer dwellings, Mayson and Turner Rd. and E. Ninth St.; \$6000 each.

Ga., Forsyth—Mrs. Stella V. Hill will enlarge and remodel dwelling; \$10,000; frame; metal roof; hardwood floors; baths, etc.; Dennis & Dennis, Archts., Macon.

Ga., Macon—Odom Realty Co. will erect 5 frame bungalows, 204 Pearce, 403 and 417 Montpelier, 510 Hillyer and 903 Napier Sts.; 3 brick veneer bungalows, 102-06-07 Hill Crest Ave.; total \$29,000.

Ga., Savannah—J. de Bruyn Kops, Archt., will erect residence in Ardsley Park; brick; artificial stone trim; terra cotta; tile baths; oak floors; reinforced concrete porches; hot air heat; plans by owner.

La., New Orleans—J. T. Kirn will erect \$14,000 double cottage, S. Olympia and Cleveland Sts.

La., New Orleans—C. J. Atkinson will erect \$10,000 duplex dwelling, Point St.; E. L. Markle, Archt., 4414 Baronne St.

La., New Orleans—F. Heldrich will erect \$15,000 duplex dwelling, Lowerline and Jenette Sts.; E. L. Markle, Archt., 4414 Baronne St.

Md., Baltimore—Wm. J. Ludwig; three 1½ story dwellings, north side Virginia Ave. near Pimlico Rd.; \$12,000; Chesapeake Lumber Co., Archt., Reisterstown Rd. and Woodland Ave.; S. H. Goldman, Contr.

Md., Baltimore—Stephen P. Harwood, 10 E. Fayette St., will erect 10 dwellings, Presbury and Longwood Sts.; one 16x52 ft., nine 20x30 ft.; 2 stories; brick; \$30,000; Geo. Wessel, Archt., 2752 Winchester St.; owner builds.

Md., Baltimore—Owners' Realty Co., 2 E. Lexington St., will erect 10 dwellings, Dorchester Ave. near Reisterstown Rd.; 20x30 ft.; 2 stories; brick; slag roofs; steam heat; \$20,000; F. E. Beall, Archt., 306 St. Paul St.; owner builds. (Lately noted.)

Miss., Tupelo—Judge Geo. T. Mitchell will erect \$30,000 dwelling; brick veneer; metal columns; tile roof; concrete and oak floors; interior tile; wire glass; ventilators; vapor-vacuum heat; city lights; Walter R. Nelson, Archt., 610 McCall Bldg., Memphis, Tenn. (Lately noted.)

Mo., Kansas City—F. P. Lyman will erect \$15,000 dwelling, 3701 Locust Ave.

Mo., Kansas City—Western Investment Co. will erect 12 dwellings; 4900 Holly St., \$6000; 4718 W. Prospect Pl. and 3116 Spruce Ave., \$4000 each; 1806-08-10-12-14-16-20-26-28 Cleveland Ave., \$2000 each.

N. C., Asheville—J. D. Stetson will erect \$15,000 brick Colonial dwelling on Lookout Mountain.

N. C., High Point—T. F. Wrenn purchased site on Greensboro Blvd. near High Point and will erect dwelling.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Okla., Oklahoma City—Mrs. Lilly F. Grant will erect \$15,000 brick dwelling and garage, 527 W. 15th St.

Okla., Oklahoma City—Jack Gill, 412 W. 23rd St. will erect \$10,240 dwelling, 312 W. 17th St.; 42x29 ft.; brick veneer; shingle roof; oak floors; hot air heat; tile in bath; electric lights; S. A. Nichols Co. Archt., 115 N. Horvey St.; owner builds (Lately noted.)

Okla., Tulsa—Robt. E. Adams plans 50 dwellings.

Okla., Tulsa—W. Warren Ferrell & J. A. Harrison, 421-22 Mayo Bldg., will erect 30 bungalows in Kendall; 6 to be started at once.

Tenn., Pikeville—John M. Gerren, Fort Lauderdale, Fla., purchased 245-acre tract on Walden's Ridge near Pikeville, and will develop Gerren Heights; erect church, hotel, public library, dwellings, etc.; Jesse T. Blackburn, Contr. for residence for Mr. Gerren.

Tex., Dallas—C. F. Cates, Jr., will erect 5 brick veneer cottages, 1003-07-15 Elsbeth St., 706 N. Mont Clair St., 1597 King's Highway; 5 and 6 rooms; \$25,000.

Tex., Dallas—M. McNatt will erect six 5 room cottages, 4221-5203-07-11-15-19 Garland St.; \$18,000.

Tex., Dallas—Rick & Hurt will erect four 6-room frame cottages, 4107 Travis St., 4719-22-23 Rick St.; \$12,000.

Tex., Houston—Embry & Gillette will erect two 5-room cottages and garages, Harold St.; \$10,013.

Tex., San Antonio—F. F. Doyle will erect \$21,000 dwelling; 2 stories; hollow tile; oak floors; tile wainscoting; Atlee B. & Robt M. Ayres, Archts., Bedell Bldg.

Tex., San Antonio—Geo. Wooten will erect \$10,000 frame and stucco dwelling; Atlee B. & Robt. M. Ayres, Archts., Bedell Bldg.

Va., Richmond—L. M. Chesnam will erect 5 dwellings, 3017-25 Garland Ave.; frame and stucco; \$30,000.

Va., Richmond—Muhleman & Kayhoe will erect 4 frame dwellings, 403-09 S. Elm St.; \$20,000.

W. Va., Wheeling—Chas. H. Weiss will erect \$11,000 dwelling, 7 Lenox Ave.; brick and tile.

Hospitals, Sanitariums, Etc.

Ga., Augusta—City plans \$50,000 nurses' home at University Hospital. (See City & County.)

Mo., Farmington—Board of Managers, State Eleemosynary Institutions, H. D. Evans, Prest., St. Louis, receives bids until Oct. 7 to erect cow barn at State Hospital No. 4; plans and specifications from H. H. Hohen-schild, Archt., 401-02 Odd Fellows' Bldg., St. Louis.

N. C., Sanatorium—Residence, etc.—Joint Building Comm., H. A. Underwood, Engr., Raleigh, will erect residence for asst. superintendent, power house building and ice making plant, at North Carolina Tuberculosis Sanatorium, Dr. L. B. Brayer, Supt.; \$45,000; reinforced concrete, steel, etc.; slate roof; cement and wood floors; plans by Mr. Underwood; bids opened Oct. 5. Address Dr. Brayer.

N. C., Winston-Salem—Methodist Children's Home Board of Trustees Rev. Chas. A. Wood, Supt., will erect \$50,000 hospital, also dormitory to accommodate 25; Louis H. Asbury, Architect, Charlotte (Lately noted.)

Tenn., Chattanooga—Ancient Free and Accepted Masons plan hospital.

Tenn., Chattanooga—Civitan Club, T. C. Thompson, Prest., is promoting hospital and

possibly office building for doctors and professional men.

Tex., Vernon—Wilbarger-Board Baptist Assn. will erect \$40,000 hospital.

Hotels.

Fla., DeLand—Putnam Hotel Co., organized by G. W. Lenkerd, Prest.; V. W. Gould, Vice-Prest.; T. B. Stewart, Secy.; \$110,000 capital; will erect hotel; 4 stories; brick and hollow fireproof tile; concrete and wood floors; ornamental terra cotta; built-up and tile roof; electric elevators; J. T. Cairns, Archt. (Previously noted.)

Fla., Leesburg—R. M. Marshall and others will erect tourist hotel, 5th and Main Sts.; 55x150 ft.; 5 stories; 125 rooms with bath; brick, hollow tile and cement.

Ky., Louisville—Harry Talamina, Secy.-Treas.; American Mosiac & Tile Co., is reported to erect \$800,000 apartment hotel, Third St.; 12 stories.

Md., Baltimore—Dreher, Churchman & Paul, 1424 Walnut St., Philadelphia, prepared plans for Bay Ridge Hotel; \$200,000; Colonial design; 700 ft. frontage; construct pier.

N. C., Asheville—Citizens Hotel Co. will incorporate with \$1,000,000 capital and erect 9-story hotel, Hiwassee and Haywood Sts.; Wm. L. Stoddard, Archt., 9 E. 40th St., New York.

N. C., Asheville—Jenkins Building, Jno. O'Neill, Mgr., Haywood St., will remodel structure and erect 21-room addition for Haywood Hotel; \$20,000.

N. C., Crestmont—Great Smoky Mountain Club, N. Buckner, Secy.-Treas., Asheville, and Hot Springs Development Co. consolidated and will erect hotel of 80 to 100 rooms, baths, cottages and golf course. (Lately noted.)

N. C., King, Route 2—A. G. Jones and others purchased 300-acre site on Sauratown Mountain and plan to erect hotel and establish summer resort.

W. Va., Montgomery—Midland Hotel Co. incptd. with \$150,000 capital; Jake Kandel, B. C. Hooper, O. K. Robinson and others, incptrs.; will erect hotel; fireproof; 75 to 100 rooms.

Miscellaneous.

Ala., Mobile—Undertaking—Frank L. Roche will remodel 2-story brick residence, Government and Franklin Sts. for undertaking establishment; Wm. March, Archt., 110 State St.

Ga., Macon—Stable—Atlantic Ice & Coal Corp. will erect \$15,000 stable to replace burned structure; 60x120 ft.; brick and frame; tar and gravel roof.

Okla., Bristow—Fair—Creek County Fair Assn. will erect several buildings; \$10,000.

Tex., Houston—Orphanage—Pauline Sterne-Wolff Memorial Home, incptd. with \$500,000 capital, by E. P. Hamblen, H. S. Fox, Jr. and others; will establish orphanage.

Tex., Houston—Museum—Houston Art League will erect building; bids opened Oct. 2; Wm. Ward Watkin, Archt.

Tex., San Antonio—Clubhouse—San Antonio Architectural Club, E. B. Hays, Prest., 215 5th St., plans clubhouse.

W. Va., Charleston—Auditorium—J. Shirley Ross is reported interested in erection of auditorium for industrial exhibits at White City Park; \$50,000; 150 ft. square.

Railway Stations, Sheds, Etc.

Tenn., Jackson—Birmingham & Northwestern R. R., J. R. Todd, Ch. Engr., will erect depot on Bellview St.

Schools.

Ala., Danville—Morgan County Board of Education, E. L. Hays, Supt., Decatur, will erect school.

Fla., Groveland—Lake County Board of Public Instruction, W. A. MacKenzie, Chrmn., Tavares, receives bids until Oct. 9 to erect school; \$16,500; brick; composition roof; plans and specifications at office Alan J. MacDonald, Archt., Eustis. (Lately noted.)

Fla., West Palm Beach—County Board of Education, Agnes Ballard, Supt., will erect high school gymnasium; 1 story; 90x70 ft.; balcony to accommodate 120; F. H. Trimble, Archt., Orlando. (Previously noted.)

Ga., Atlanta—Board of Education, J. W. Landers, City Pur. Agt., receives bids until Oct. 10 to erect elementary and normal school; \$200,000; 312x197 ft.; fireproof; tile and built-up roof; maple, tile and terrazzo floors; steam heat; electric lights; Wm. J. J. Chase, Archt., 140 Peachtree St.; A. Ten Eyck Brown, Supvr. Archt., Forsyth Bldg. (Lately noted.)

La., Basile—School Board will erect \$50,000 high school; brick; bonds voted.

La., Baton Rouge—East Baton Rouge Parish School Board will erect \$40,000 high school; brick and joist construction; composition roof; wood floors; low pressure steam heat; electric lights; bids opened Oct. 3; W. T. Nolan, Archt., Canal Commercial Bank Bldg., New Orleans. (Lately noted.)

La., Ville Platte—Evangeline Parish School Board, Y. L. Fontenot, Secy., will erect frame schools at Point Blue, Pine Point and Bebe Fruge's near Tyrone and brick school at Valentine Manuel's near Basile; Duncan & Barron, Archts., Alexandria; bids opened Oct. 2.

Md., Baltimore—Board of Awards, Mayor, Wm. F. Broening, Prest., receives duplicate bids until Oct. 18 at office Richard Gwinn, City Register, City Hall, to erect Northeast Junior High School in Clifton Park; \$700,000; 3 stories and basement; 400x160 ft.; 30 classrooms; assembly hall to seat 2000; hollow fireproof and interior tile; hardwood, concrete and tile floors; ornamental terra cotta; plaster board; wire glass; steel sash and trim; indirect steam heat and ventilators; electric lights; Josias Pennington, Archt., Professional Bldg., Baltimore, and 477 5th Ave., New York. (Lately noted.)

Miss., Canton—District School Trustees will erect \$80,000 high school; 25x70 ft.; semi-fireproof; composition roof; wood and cement floors; steam heat; N. W. Overstreet, Archt., Jackson. (Lately noted.)

Miss., Pope—School Board will erect building; \$19,500 bonds voted.

Mo., Columbia—University of Missouri, Edw. E. Brown, Bus. Mgr., receives bids until Oct. 16 to erect \$250,000 hospital; fireproof; promenade tile roof; metal doors; terrazzo and linoleum floors; hot water heat; elevator; plans and specifications at office Jamieson & Spearl, Archts., Arcade Bldg., St. Louis. (Previously noted.)

Mo., Columbia—DeMolay Chapter and Acacia Fraternity, University of Missouri, plan \$200,000 dormitory; Dr. J. C. Jones, Prest. of University, may be addressed.

N. C., Aberdeen—Board of Education will erect \$50,000 school; brick; fireproof roof; wood and cement floors; Aymar Embury, 2nd, Archt., 132 Madison Ave., New York; \$75,000 bonds voted. Address H. W. Doub. Aberdeen. (Lately noted.)

N. C., Clinton—Board of Education, H. J. Hines, Chrmn. Bldg. Comm., will erect school; 133x127 ft.; brick; built-up roof; wood floors; direct-indirect radiation; Benton & Benton, Archts., Wilson; bids until Oct. 3.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

N. C., East Durham—School Board will erect \$25,000 addition.

N. C., Hendersonville—School Board will erect addition to high school.

Okla., Adair—School Board will erect 2-room brick building.

N. C., Marion—McDowell County Board of Education, T. W. Stacy, Chrmn., will receive bids until Oct. 16 to erect school in East Marion; plans and specifications at office T. E. Davis, Archt., Asheville.

S. C., Gaffney—Gaffney School District Trustees plan \$300,000 building.

S. C., Greenwood—Bailey Military Institute, chartered with \$30,000 capital; Jno. W. Moore, Prest.; J. E. Burnside, Jr., Secy.; S. Brooks Marshall, Treas.; plans preparatory school for boys.

Tex., El Paso—School Board will erect building at Clifton St. and Hillside Ave.

Tex., Georgetown—Board of Education will erect 2-story high school; \$200,000; reinforced concrete frame faced with brick; C. H. Page & Bro., Archts., Austin National Bank Bldg., Austin. (Lately noted.)

Tex., Sweetwater—Board of Education will erect \$75,000 structure to replace East Ward School.

Tex., Ysleta—Ysleta Independent School Dist. No. W-4 will erect addition and alter building; bids opened Oct. 2; Geo. C. Burnett, Archt., 315-17 Herald Bldg.; El Paso.

Va., Arlington—Arlington School Dist. will vote Oct. 9 on bonds. Address Dist. School Trustees.

W. Va., Weirton—Butler School Dist. plans election Nov. 7 on \$210,000 bonds. Address Dist. School Trustees.

Stores.

Ark., Warren—Southern Lumber & Supply Co. will erect business building.

Fla., Tampa—W. T. Farley, 912 Franklin St., will double floor space and install fixtures in store; \$15,000.

Ga., Atlanta—Jno. W. Grant will erect building to replace structure lately noted burned.

Ky., Ashland—Crump & Field will erect store to replace burned structure; 3 stories.

La., New Orleans—Carbajal Estate will remodel store on Canal St.; \$10,000; 2 stories; brick and frame; Montz & Maroney, Archts., Title Guarantee Bldg.; day labor.

Miss., Durant—Mrs. B. J. Angle will erect brick building.

Miss., Greenwood—J. W. Quinn Drug Co. will erect building, Carrollton Ave. and Main St.; 2 stories and basement; brick.

Mo., Kansas City—J. M. Jackson will erect \$15,000 building, 5448 E. 51st St.; 1 story; brick.

Tenn., Memphis—A. B. Lanning will erect 7 stores, 1904-16 Poplar St. (See Apartment Houses.)

Tenn., Memphis—Bry-Block Mercantile Co., will reconstruct Matt Monaghan Bldg., 70-72 Jefferson St.; ornamental terra cotta; Britling Cafeteria Co. will install self serving cafes; Mahan & Broadwell, Archts.

Tex., Fort Worth—J. W. Head will erect drug store, Enderley Place and Park Place.

Tex., Fort Worth—Frank Newsom will erect store in 1000 block Arlington Ave.

Tex., Kosse—W. D. Allen will erect building on Narcissus St.; \$43,000; 1 story; 150 ft. frontage; brick.

Tex., New Braunfels—Mrs. Staples will erect 1-story store building; C. B. Schoeppl & Co., Archts., San Antonio.

Theaters.

Fla., Lake City—Grand Theater will remodel building; install exhaust fans, electric fixtures, etc.; T. M. Bryan, Archt., Ray Littlefield, in charge.

Fla., Plant City—C. E. Barnes and W. E. Lee plan to erect theater at Mahoney and Collins Sts.

Ky., Louisville—Baxter Amusement Co. will erect \$40,000 to \$50,000 motion picture theater on Bardstown Rd.; seating capacity 1000; D. X. Murphy & Bro., Archts.

N. C., Raleigh—State Theater, Daniel Allen, Prest., will erect \$150,000 building;

70x90-ft.; fireproof; seating capacity 1400; G. Lloyd Preacher & Co., Archts., Atlanta and Augusta, Ga. (Lately incorrectly reported at N. C., Fayetteville.)

Warehouses.

Ala., Selma—A. J. Isaacson will erect warehouse to replace structure noted burned.

Md., Salisbury—Salisbury Ice Co. will erect storage houses and platform 400 ft. long.

La., Lafayette—Peoples' Cotton Oil Co., T. M. Blossat, V.-P.-Gen Mgr., will erect warehouse to replace structure lately noted burned; 200x150 ft.

BUILDING CONTRACTS AWARDED

Apartment Houses.

Ga., Atlanta—Real Estate Investment Corp., Robt. Greer, Prest.; \$400,000 building, Peachtree and Sixth Sts.; Georgian architecture; 100x104 ft.; 5 stories and basement; concrete; tar and gravel roof; concrete and oak floors; hollow fireproof and interior tile; metal doors; vapor heat, \$11,000; electric lights; 2 passenger elevators, \$10,000; Hentz, Reid & Adler, Archts., Candler Bldg.; Adair & Senter, Contrs.

Md., Baltimore—Gwynwood Apartment Co., Harold C. Hann, Prest.; \$125,000 building, Windsor Hills, 6 stories; irregular dimensions; 22 apartments; steel; wood joist; stone wall to first floor, brick above; slate roof; concrete, hardwood and tile floors; metal door; steam heat; Theo. Wells Pietsch, Archt., American Bldg.; J. L. Robinson Construction Co., Contr., Carrollton and Lafayette Aves. (Lately noted.)

Tex., San Antonio—Mrs. S. J. McCullough; \$14,000 building, S. Presa St.; 2 stories; 40x78 ft.; C. B. Schoeppl Co., Archt.-Contr., Gunter Bldg.

Association and Fraternal.

La., New Orleans—American Legion, Sam. P. Stone, 714 Union St., Jacques de Tarnowsky, Jos. Bernard, Comm.; alter Girod St. warehouse for temporary auditorium; 200x400 ft.; frame and wall board; Gervais Favrot, Contr.; material purchased.

Mo., Mountain Grove—Mountain Grove Masonic Temple Assn.; \$30,000 building; 44x110 ft.; 2 stories and full basement; brick and concrete; asphalt shingle or paper roof; concrete and oak floors; wire glass; steel sash and trim; electric lights, \$300 to \$800; Heckenlively & Mark, Archts., Springfield. Address F. N. Funston, Contr., Mountain Grove. (See Mch. Wanted—Building Material.)

Bank and Office.

Ga., Atlanta—American Savings Bank; alterations to building; Wm. J. J. Chase, Archt., 140 Peachtree St.; Kennedy & McGinnis, Contrs.

Md., Baltimore—Citizens National Bank, Hanover and Pratt Sts., Albert D. Graham, Prest.; \$2,000,000 building, Light and Redwood Sts.; 20 stories; 116x77 ft.; fireproof; steel and Bedford limestone; banking room 43 ft. high, with mezzanine floor, 6 marble columns on each side; bank entrance on Light St., office entrance on Redwood St.; Graham, Anderson, Probst & White, Archts., Railway Exchange Bldg., Chicago; Geo. A. Fuller Co., Contr., American Bldg., Baltimore.

Mo., Monett—Monett State Bank will erect addition to building at 5th and Broadway; contract let.

Churches.

Miss., Holly Springs—Baptist Church, S. C. Lowry, Secy., Bldg. Comm.; \$30,000 building; 2 stories and basement; brick; concrete and wood floors; metal columns; tile roof; hot air heat; J. E. Greene, Archt., Birmingham, Ala.; H. P. Chastang Construction Co., Contr., Jackson, Miss.

Miss., Natchez—First Baptist Church, Dr. W. A. Borum, Pastor; \$60,000 building; brick; stone trim; Bost & Moss, Supervising Archts.; Jesse Spencer, Contr. for brick work.

Miss., Sunflower—Baptist Church, R. C. Fox, Chrmn. Bldg. Comm.; \$10,000 building; 2 stories; brick; concrete and wood floors; asphalt shingle roof; hot air heat; J. E. Greene, Archt., Birmingham, Ala.; H. P. Chastang Construction Co., Contr., Jackson, Miss.

N. C., Rocky Mount—First Baptist Church, Rev. C. Kelly Hobbs, Pastor, let contract to erect building; auditorium capacity 550; 12 Sunday school rooms.

City and County.

Ala., Tuscaloosa—Fire Station—City; \$11,000 fire station, 7th St. near 25th St.; D. O. Whildin, Archt., Birmingham; A. Laycock, Contr., Tuscaloosa.

Ga., Atlanta—Market—City, James L. Key, Mayor; \$500,000 market building, Peachtree and Cain Sts.; 243x143 ft.; basement, main and mezzanine floors; Spanish renaissance type; reinforced concrete; cold storage in basement; auditorium to seat 1200; rest rooms, nursery, etc.; Turner Construction Co., Contr., 140 Peachtree St.

Mo., Bogard—Memorial—Bogard County; \$25,000 memorial auditorium; 2 stories; 50x70 ft.; concrete, tile and brick; Carey-built-up roof; pine and tile floors; vapor heat, \$4000; city lights; Foster E. Scott, Archt., Carrollton; Jack Street, Contr., Bogard.

Mo., Kansas City—Fire Alarm Station—City; \$36,500 central fire alarm station; Robt. W. Waddell, City Engr.; Jas. F. Flanagan Construction Co., Contr.

N. C., Morganton—Home—Burke County, B. L. Millner, Chrmn. County Commrs.; brick building at County Home; Louis H. Asbury, Archt., Realty Bldg., Charlotte; J. M. McLaughlin, Morganton, Contr. at \$28,700, not including heating, lighting, plumbing, etc.

N. C., Washington—Fire Station—City; \$30,000 fire station on Market St.; 2 stories; shower baths; heating plant on first floor; Rhodes & Underwood, Contrs., Wilmington.

Tenn., Knoxville—Detention Home—City, E. W. Neal, Mayor; juvenile detention home, Clinch Ave. and Henley St.; Barber & McMurray, Archts.; J. Gordon Powers, contr. at \$16,446; Knoxville Plumbing Co., plumbing, \$4071; electric wiring and fixtures not let.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Courthouses.

Ark., Charleston—Franklin County; \$39,000 courthouse, Main St.; Colonial type; 2 stories and basement; 44x70 ft.; brick, stone and cement; concrete and wood floors; metal ceilings; steam heat; vaults; Frank W. Gibb & Co., Archts., 227 Gazette Bldg., Little Rock; Claud alley, Contr., Ozark.

Tex., Beaumont—Jefferson County; 3-story annex to courthouse; F. W. Steinman & Son, Archts.; Herman Weber, Contr. at \$44,985.

Dwellings.

Fla., Avon Park—Cyrill Baldwin; 2-story dwelling near Lake Verona; frame; 12 rooms; John R. Williams and C. R. Barnett, Contrs.

Fla., Bradentown—Roy A. Parker; Italian type dwelling; A. C. Price, Archt.; T. W. Hullinger & Son, Contrs.; construction begun.

Fla., Bradentown—John Vanderripe; tile and stucco dwelling; A. C. Price, Archt.; Carl Price, Contr.

Fla., Bartow—G. H. McCoy, Mgr. Swift & Co., Agricola; bungalow, Wilson Ave. and Pearl St.; Francis J. Kennard, Archt., Tampa; Keys & Spittler, Contrs.

Fla., Jacksonville—J. L. Homes; \$10,000 dwelling; 2 stories; brick; Leadley Ogden, Contr.

Fla., St. Petersburg—L. Roy Sargeant; \$10,000 bungalow, 806 18th Ave.; 10 rooms; Hennessey & Taylor, Contrs.

Fla., Tampa—B. F. Walker has contract to erect \$10,000 dwelling, 402 Platt St.; 2½ stories; F. J. Kennard, Archt.

La., New Orleans—Mrs. J. Nelson, Strand Hotel; \$17,000 residence-apartment, St. Charles Ave. and Thalia St.; 2 stories; frame faced with stucco; A. L. DeJong, Contr.

La., New Orleans—Homeseekers' Building & Loan Assn.; 2-story building, Spain and Burgundy Sts.; \$14,400; Louis J. Woodworth, Contr.

La., Shreveport—Dr. Allyn B. Moise, 353 Herndon Ave.; \$19,675 dwelling, Fairfield Ave.; 2 stories; 9 rooms and 2 baths; hollow tile and stucco; tile cement roof; oak and pine floors; hollow fireproof and interior tile; stoves (natural gas); Edw. F. Neild, Archt., Merchants Bldg.; Rudy & Saur, Contrs.

La., New Orleans—J. Vaccaro, Jr.; \$10,650 bungalow, Napoleon Ave. and Roman St.; Chas. Pumila, Archt.; J. A. Haase, Jr., Contr.

Mo., St. Joseph—E. L. Smith, 5603 King Hill Ave.; \$15,000 dwelling, 25th and Mulberry Sts.; 2 stories and basement; 28x45 ft.; brick and stone; Eckel & Aldrich, Archts., Corby-Forsee Bldg.; E. G. Brown, Contr., 209 Harvard St.

Tenn., Pikeville—John M. Gerren, Fort Lauderdale, Fla.; dwelling on Sexton tract, Walden's Ridge, near Pikeville; Jesse T. Blackburn, Contr. (See Buildings Proposed—Dwellings.)

Government and State.

Md., Baltimore—Dormitory—Board of Prison Control, Ogle Marbury, Prest., Fidelity Bldg., will remodel Dormitory G at Maryland Penitentiary; \$33,655; contract let.

Hospitals, Sanitariums, Etc.

Va., Richmond—Johnson-Willis Hospital; \$250,000 building, including mechanical equipment, Boulevard opposite Battle Abbey; 40x165 ft.; 5 stories, basement and sub-basement; concrete frame; brick, limestone and terra cotta; Barrett roof; concrete, tile and terraz-

zo floors; hollow fireproof and interior tile; metal doors; ornamental terra cotta; Marcus E. Wright, Archt.; Wise Granite & Construction Co., Contr.

W. Va., Charleston—Mountain State Hospital Co., Geo. D. Kenny, Secy.; \$60,000 hospital, Virginia St.; 3 stories and full basement; brick; tile roof; hardwood floors; hot water heat; electric lights; Otis elevator, \$3500; Jas. L. Montgomery, Archt.; J. D. Moore, Contr. Address Secy.

Hotels.

Ala., Huntsville—Yarbrough Bros.; hotel at Washington and Holmes Sts.; E. N. Grogan, Fayetteville, contr. for concrete work and foundation.

Fla., St. Petersburg—Ponce De Leon Hotel Co.; \$100,000 hotel; 42x120 ft.; steel frame; Barrett roof or equal; hardwood and tile floors; hollow fireproof tile; steam heat; Otis elevators; Geo. Feltham, Archt.; Emerson M. Wood, Contr.; M. J. Terranova, contr. at \$34,000 for brick work, stucco and plastering. (Previously noted.)

Fla., St. Petersburg—J. N. Brown; \$150,000 hotel and store; 7 stories and basement; 65x100 ft.; 108 rooms with bath; fireproof; steel, concrete, brick and hollow tile; ornamental terra cotta; concrete roof; metal ceilings and doors; wire glass; steel sash and trim; ventilators; vapor heat; electric lights; 2 passenger elevators; H. L. Wendell, Archt., La Plaza Theater Bldg.; Ingalls Iron Works, Birmingham, contract for steel frame.

Ga., Atlanta—Ansley Hotel Co. (L. J. and C. L. Dinkler); 125-room addition to Ansley Hotel; 12 stories; private baths; 2 dining rooms to accommodate 250 to 300 guests; G. Lloyd Preacher & Co., Archts.; H. J. Carr & Co., Contrs.

Ky., Mayfield—Mrs. C. T. Winslow; repair hotel; 45 rooms; brick; interior tile; hardwood, wood block and concrete floors; Ellis Wickersham, Archt.; Hub Wright, Contr.

Tex., Kosse—Kosse Hotel Co., H. A. DeVaux, Breckenridge, Chas. B. Gaddis, Mexia, and others; \$100,000 hotel; brick; contract let.

Tex., San Antonio—Travis Investment Co.; 10-story hotel; 80x100 ft.; 175 rooms; reinforced concrete and brick; concrete floors and roof; ornamental terra cotta; interior tile; steel sash and trim; low pressure steam heat; 2 electric elevators; Herbert S. Green, Archt.; W. E. Simpson Co., Engrs.; DePuy & Ranney, Contrs.

Miscellaneous.

Tenn., Memphis—Clubhouse—Chickasaw Golf Club, S. T. Carnes, Prest.; remodel 2 cottages for temporary locker and clubhouse; contract let; plans in progress for permanent structure to cost \$75,000; 80x175 ft.; 2 stories; E. L. Harrison, Archt.

Railway Stations, Sheds, Etc.

Ark., Lake Village—Missouri-Pacific R. R.; passenger station; 24x115 ft.; brick; stone trim; tile roof; cement floors; stoves; city lights; E. M. Tucker, Archt.; Herman & McCain, Contrs., Little Rock.

Mo., Elsberry—Chicago, Burlington & Quincy R. R., W. T. Krausch, Engr of Bldg., 547 W. Jackson Blvd., Chicago; passenger station; 24x60 ft.; brick; tile floor; G. A. Johnson & Sons, Contrs., Chicago.

Schools.

Fla., Palmetto—Board of Public Instruction; \$37,000 high school; load bearing tile walls; stucco exterior walls; stone trim; brick fire walls; asphalt built-up roof;

steam heat; 10 classrooms, library, study hall, assembly hall, laboratory, principal's office, restroom, shower baths, individual lockers and storage rooms; Johnson & Fonda, Archts.; T. W. Hullinger & Son, Contrs.; Armstrong Bros., heating, \$3900; all Bradentown.

Miss., Poplarville—Board of Education; \$50,000 grammar school; 82x126 ft.; ordinary construction; Barrett roof; cement and rift pine floors; J. P. Krouse, Archt.; C. O. Eure Constr. Co., Contr., both Hattiesburg.

Miss., Swiftown—School Board will erect \$19,975 building; 2 stories; 6 classrooms; Lockett & McGinnis, Contrs., Greenwood.

N. C., Hayesville—Board of Education; high school; brick; 12 rooms and auditorium; C. M. Dicus, Contr., Robbinsville; Frank B. Simpson, Archt., Raleigh.

N. C., Vanceboro—Board of Education; \$39,000 high school; 2 stories and basement; brick; 10 class rooms, library, home economics, auditorium, 2 music rooms, etc.; G. Lloyd Preacher & Co., Archts.-Engrs., Commercial Bank Bldg., Raleigh; Walter Clarke, Contr., Wilmington.

N. C., Winston-Salem—Board of Education; \$86,000 colored grade school, E. 14th St.; J. L. Crouse, Contr., Greensboro.

Tex., Burkburnett—Board of Education; \$101,850 high school; 2 stories; brick and reinforced concrete; tar and gravel roof on concrete; wood floors over concrete; C. H. Page & Bro., Archts., Austin National Bank Bldg., Austin; Reid & Costley, Contrs., American National Bldg., Wichita Falls; Tension Bros., Dallas, heating; Hoffman & Co., Wichita Falls, plumbing.

Tex., Kerens—School Board; \$27,500 high school; 2 stories; 82x72 ft.; semi-fireproof; brick and frame; Johns-Manville asbestos roof; edge grain pine floors; auditorium to seat 650; H. O. Blanding, Archt., Corsicana; W. H. King, Contr., 410 Andrews Bldg., Dallas.

Tex., Kerrville—Shreiner Institute, J. J. Delaney, Prest.; administration building; 3 stories; 50x120 ft.; dormitory; 2 stories; 39x80 ft.; president's home; 2 stories; brick; slate roof; tile and wood floors; \$100,000; Clyde & Rolfe, Archts., Sherman; McKenzie Construction Co., Contr., San Antonio.

Tex., San Angelo—Board of Education; 2 schools; \$18,584; 1 story; brick; O. S. Mills, Contr.

Stores.

Ark., Little Rock—Boyle Realty Co., Boyle Bldg.; \$250,000 store and office building, Capitol Ave. and Louisiana St.; 5 stories; 100x100 ft.; fireproof; reinforced concrete; wood and concrete floors; hollow fireproof tile, ornamental terra cotta; Sanders & Ginochio, Archts., Urquhart Bldg.; Ault & Burden, Contrs.

Ark., Ozark—Elsey Harris will erect business building; stone; Claud Talley, Contr.

Fla., West Palm Beach—Anarctic Ice Co. will erect building in Clow Addition; 45x27 and 30x20 ft.; \$10,000; Kelstone Constr. Co., Contr.

Ky., Paintsville—Jas. W. Turner, will erect store; Eastern Kentucky Lumber & Supply Co., Contr., Louisa.

Ky., Paintsville—Sid Webb will erect business building; Eastern Kentucky Lumber & Supply Co., Contr., Louisa.

La., New Orleans—M. Hochfelder; \$40,000 store building, St. Charles Ave. and Clio St.; 2 stories; 58x105 ft.; brick and stone; Weiss, Dreyfous & Selferth, Archts., Maison Blanche Bldg.; R. P. Farnsworth, Contr.

N. C., Charlotte—George E. Wilson Es-

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

tate; \$18,000 building on S. Tryon St.; 2 stories; 20x140 ft.; Thies-Smith Realty Co., Contr.

Tex., San Antonio—Josephine Frost Estate; \$27,688 store; reinforced concrete; Jno. M. Marriott, Archt.; Gundermann & Allen, Contrs.; Travis Electric Co., electric

work; Jud & Ormond, heating and plumbing.

Tex., San Antonio—Ed. Roberts; \$13,800 brick building, Hackberry and E. Commerce Sts.; Beverly W. Spillman, Archt.; Moeller & Weilbacher, Contrs.

Tex., San Antonio—J. M. Nix; \$40,000 building, College and Navarro Sts.; 1 story; 171x

115 ft.; brick and tile; 13 stores and one garage; Henry T. Phelps, Archt.; Jay Depuy, Contr.

Warehouses.

W. Va., St. Albans—Burley Tobacco Growers' Cooperative Assn.; warehouse; I. E. Johnson, Contr.

MACHINERY, PROPOSALS AND SUPPLIES WANTED

Automobile Machinery and Supplies.—Box Motors Co., Georgetown, Tex.—Prices on machinery and supplies for mfrs. of automobiles.

Automobile Shop Equipment.—Consolidated Motor Co., L. Williams, Secy., Marianna, Fla.—Prices on automobile shop equipment.

Beams (Steel).—Rev. W. A. Ray, 511 Mississippi Ave., Memphis, Tenn.—Steel beams.

Boilers.—D. C. Elphinstone (Machinery Dealers) 408 Continental Bldg., Baltimore, Md.—Battery of boilers developing 1000 H. P., must be in good condition.

Boiler.—Guadalupe River Navigation Co., Victoria, Tex.—Prices on new and second-hand, 80 H. P. horizontal return tubular boiler.

Bottling Equipment.—Elixir Mineral Water Co., 425 Graham Bldg., Jacksonville, Fla.—Several thousand bottles and 500 coolers for bottling plant at Hibernia, Fla.

Brick.—F. N. Funston, Mountain Grove, Mo.—Brick. (See Building Material.)

Brick Making Machinery.—Jno. T. Sharp, Jr., Canton, Miss.—Data and prices on brick making mch.; also data on mfrs. of bricks; correspond with mfrs.

Bridge Construction.—O. F. Holcombe, Mayor, Houston, Tex.—Bids until Oct. 30 for 30-ft. reinforced concrete bridge at Cleveland Park; plans, etc. from City Engr.

Bridge Construction.—Noxubee County, Board of Supvrs., Macon, Miss.—Bids until Oct. 9 for bridge over Running Water Creek, on State Trunk Road, between Macon and Meridian; 133.72 cu. yds. concrete; 14,200 lbs. reinforcing steel; 60 ft. steel truss span; plans, etc. on file from H. C. Dietzer, State Highway Engr., Jackson, Miss.

Bridge Construction.—State Highway Department Jefferson City, Mo.—Bids until Oct. 12 for following bridges:

On State road from Kennett southward, Dunklin County, Federal Aid Project No. 190.

Station 51 plus 10, over Drainage Ditch No. 24; 50-ft. I-Beam span; wood floor; 2 reinforced concrete abutments; 18-ft. roadway.

Station 253 plus 06, over Drainage Ditch No. 5; 60-ft. truss span; wood floor; 2 reinforced concrete abutments, skewed; 18-ft. roadway; F. B. Newton, Div. Engr., Sikeston, Mo.

Bridge Construction.—State Highway Dept., Jefferson City, Mo.—Bids until Oct. 13 for following bridges:

On State road from Hayti northward; Pemiscot County, Federal Aid Project No. 173-A.

Station 593 plus 22.5, over Drainage Ditch; 30-ft. I-Beam span; wood floor; 2 reinforced concrete abutments; 20-ft. roadway.

Station 646 plus 10, over Drainage Ditch; 30-ft. I-Beam span; wood floor; 2 reinforced concrete abutments; 20-ft. roadway.

Station 683 plus 07, over Drainage Ditch; 30-ft. I-Beam span; wood floor; 2 reinforced concrete abutments; 20-ft. roadway; F. B. Newton, Div. Engr., Sikeston, Mo.

Bridge Construction.—State Highway Dept., Jefferson City, Mo.—Bids opened Sept. 28 for following bridges:

St. Charles County, State Project, Route 2, Sections 70, 72 and 73, on State road from Warrenton to St. Charles.

Sta. 1229 plus 41; 20-ft. reinforced concrete slab span; 2 reinforced concrete abutments; 24-ft. roadway.

Sta. 1334 plus 74, Over Cole Creek; 35-ft. reinforced concrete deck girder span; 2 reinforced concrete abutments; 20-ft. roadway.

Sta. 272 plus 40, over Spencer Creek; 50-ft. steel truss spans; concrete floor; 20-ft. reinforced concrete slab span each end; 2 reinforced concrete piers, and reinforced concrete pile bents.

Sta. 1106 plus 30, over Spencer Creek; 35-ft. reinforced concrete deck girder span; 2 reinforced concrete abutments; 20-ft. roadway.

Sta. 604 plus 29, over Peruque Creek; 80-ft. steel truss; concrete floor; two 20-ft. reinforced concrete slab approach spans at each end; 2 reinforced concrete piers; 4 reinforced concrete pile bents; 20-ft. roadway; S. M. Rudder, Div. Engr., Bristol Bldg., Webster Grove, Mo.

Texas County, State Project, Route 7, Sec. 79, on State road from Houston to Rolla:

Sta. 2163 plus 00; 20-ft. reinforced concrete slab span; 2 mass concrete abutments; 24-ft. roadway; J. H. Long, Div. Engr., Willow Springs, Mo.

Lewis County, State Project, Route 6, Sec. 60, on State road from Monticello to Canton.

Sta. 35 plus 20, Smith Bridge; 12-ft. reinforced concrete slab spans; 2 reinforced concrete abutments; 24-ft. roadway; Harry D. Griffith, Div. Engr., Hannibal, Mo.

Vernon County, State Project, Route 26, Sec. 6, on State road from Nevada to Eldorado Springs.

Sta. 421 plus 32; 30-ft. reinforced concrete dock girder span; 2 reinforced concrete abutments; 20-ft. roadway; Ray Dunlap, Div. Engr., Frisco Bldg., Joplin, Mo.

Cape Girardeau County, State Project, Route 25, Sec. 20, on State road from Perry County line to Jackson.

Sta. 2145 plus 51, over Buckeye Creek; 50-ft. steel truss span; concrete floor; 2 reinforced concrete abutments; 20-ft. roadway; Frank B. Newton, Div. Engr., Sikeston, Mo.

Oregon County, State Project, Route 42, Sec. 4, on State road from Alton to Ripley County line.

Sta. 1558 plus 40; 30-ft. reinforced concrete deck girder span; 2 reinforced concrete abutments; 20-ft. roadway; J. H. Long, Div. Engr., Willow Springs, Mo.

Andrian County, State Project, Route 22, Sec. 9, on State road from Mexico to Francis.

Sta. 12 plus 37, over Chicago and Alton R. R. lake; six 8-ft. reinforced concrete slab spans; 2 mass concrete abutments; 5 concrete piers; 24-ft. roadway; Harry D. Griffith, Div. Engr., Hannibal, Mo.

Bucket (Clam Shell).—Guadalupe River Navigation Co., Victoria, Tex.—Prices on new and second-hand 1½-yd. clam shell bucket.

Building Material.—Miller Engineering

Corp., Water and Madison Sts., Norfolk, Va.—Bids until Oct. 6 on material for 6-story building; 60x100 ft.

Cars (Flat).—Pennsylvania Equipment Co. (Mchy. Dealers) Norwood, Pa.—150 second-hand, flat cars, 80,000 lbs. capacity.

Cement.—F. N. Funston, Mountain Grove, Mo.—Cement. (See Building Material.)

Chemical Equipment.—Consolidated Products Co., 15 Park Row, New York City.—To purchase miscellaneous chemical equipment.

Columns (Iron).—F. N. Funston, Mountain Grove, Mo.—12 iron support columns. See Building Material.)

Compressor (Air).—Henry A. Htner's Sons Co., 4501 Richmond St., Philadelphia, Pa.—Two belt driven or direct connected air compressors of approx. 500 cu. ft. each, 100 lbs. steam pressure or better; 220 or 440 volt, 2 phase; second-hand, but in good condition.

Compressor (Air).—Hackley Morrison (Mchy. Dealers) 1708 Lewis St., Richmond, Va.—400 cu. ft. belt driven air compressor.

Conical Ball Mill.—Hackley Morrison Co. (Mchy. Dealers) 1718 Lewis St., Richmond, Va.—4½ or 5 Hardinge conical ball mill.

Crane (Locomotive).—D. C. Elphinstone (Mchy. Dealers) 408 Continental Bldg., Baltimore, Md.—15 ton M. C. B. locomotive crane.

Culvert Construction.—Charles Lauve, Mayor, Franklin, La.—Bids opened Oct. 2 for 9 reinforced concrete culverts; 6330 lin. ft. concrete gutter.

Culverts, Etc.—City of Franklin, La., Charles Lauve, Mayor.—Bids opened Oct. 2 to furnish labor, equipment and material for construction of 9 reinforced concrete culverts, 1310 lin. ft. wood curb, 6360 lin. ft. concrete gutter and 70 cu. yds. concrete foundation.

Drainage.—Limestone Drainage District, Board of Supvrs., H. T. Davis, Secy., Arcadia, Fla.—Bids opened Oct. 2 to complete plan of reclamation of district, excavation approx. 91,000 cu. yds. dirt; Cravens & Kimmel, Engrs.

Drain Construction.—Wm. F. Broening, Prest., Board of Awards, Baltimore, Md.—Bids until Oct. 11 for construction of drains and appurtenances in Gwynn's Falls Park, north of Franklin Rd., approx. quantities: 1561 cu. yds. earth excavation, 650 yds. rock excavation, 357 cu. yds. concrete masonry, 29 cu. yds. brick masonry, 23 cu. yds. stone masonry, 700 lin. ft. 42-in. concrete section drain, 95 tons cast iron pipe, 5 manholes; plans and specifications on file at office of Highways Engr., Room 8, City Hall.

Dredging.—U. S. Engr. Office, Providence, R. I.—Bids until Oct. 23 to dredge in New Haven Harbor, Conn., further information on application.

Electric Generator Set.—C. E. Hewett, Mgr. and Chief Engr., Mansfield Light & Power Co., Mansfield, La.—In market in next 60 days for 20x36 Corliss engine to be belted

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

to a 250 K. W. generator, 2300 volts, 600 R. P. M., pulley or generator 32-ins. in diameter.

Electric Light Equipment.—Jacobs & Co., Clinton, S. C.—Second-hand electric light equipment for production of 40 KW of current, 3 phase, 60 cycle, 220 volt including diesel or kerosene engine with generator, exciter with switch and instrument board fully equipped; state price and condition.

Electric Power Line.—City of Winterville, N. C., J. L. Rollins, Clerk—Bids opened Oct. 2 for erection and completion of electric power line from Winterville to power house at Greenville, N. C.; plans, etc., on file at office of Clerk.

Engines.—Guadalupe River Navigation Co., Victoria, Tex.—Prices on new and second-hand 75 to 80 H. P. engine; also 15 to 20 H. P. swinging engine.

Engine (Oil).—Hackley Morrison Co. (Mchy. Dealers) 1708 Lewis St., Richmond, Va.—75 H. P., Fairbanks Morse type Y oil engine.

Engine (Steam).—Wilson-Hock Co. (Machinery Dealers) City Point, Va.—100 H. P. steam engines good economical unit desired.

Equipment for Court House.—Briscoe county commrs., Silverton, Tex.—Bids until Oct. 9 for equipment for county courthouse; plans and specifications with J. B. Richards, County Judge.

Excavator (Drag Line).—Wood & Lane Co., St. Louis, Mo.—A class 24 Bucyrus drag line excavator, mounted on skids and rollers; state condition, description, price and if possible send photograph.

Filter Presses and Dryers.—Consolidated Products Co., 15 Park Row, New York City. To purchase filter presses and dryers.

Flooring (Oak).—F. N. Funston, Mountain Grove, Mo.—Oak flooring. (See Building Material.)

Forage.—Marine Corps, Quartermaster's Dept., Washington, D. C.—Bids until Oct. 3 to furnish timothy hay, white oats, alfalfa mixed horse feed, wheat, straw, yellow or white corn and wheat bran; delivery to various posts and depots of U. S. Marine Corps. Blanks and information obtainable at this office; Sch. 129.

Gas Plant.—John D. Harris, Ashland, Va.—Estimates on gas plant for town of 2000 population.

Generator Set and Auxiliary.—Wilson-Hock Co. (Mchy. Dealers) City Point, Va.—100 or 150 K. W. direct connected motor generator set, motor to be synchronous, 3 phase, 60 cycle, 220 volt, generator to be over compounded and 250 volts; also automatic voltage regulator suitable for installation with 50 KW. 2300 volts, 60 cycle, A. C. generator.

Hardwood Floors.—F. W. McIntire, Fairmont, W. Va.—Prices on hardwood floors.

Heading Mill.—Chamber of Commerce, R. O. McCord, Secy., Cedartown, Ga.—Data and cost of establishing mill for mf're. of keg and barrel headings, etc.

Heating Plant.—Rev. W. A. Ray, 811 Mississippi Ave., Memphis, Tenn.—Steam heating plant for church 48x50 ft.

Heating System.—Board of Awards, Richard Gwinn, City Register, Baltimore, Md.—Bids until Oct. 11 to install heating system at Clarks College, annex to Garrett Heights school; plans with J. F. Crowther, Inspector of Bldgs.

Hose (Fire).—C. P. Staley, City Mgr., Fort Myers, Fla.—Bids until Oct. 10 to supply 1000 ft. of 2½-in. Eureka multiple woven fire hose, 50 ft. sections.

Hose (Fire).—City Comsn, Tampa, Fla.—

Bids opened Oct. 3 for 1500 ft. of 2½-in. triple jacket cotton rubber lined fire hose with couplings; B. A. Redding, Pur. Agent.

Inlet Construction.—Broward County Commrs., Frank A. Bryan, Clerk, Ft. Lauderdale, Fla.—Bids opened Oct. 3 to construct inlet from New River Sound to Atlantic Ocean, work includes 81,000 cu. yds. earth removed, 5000 cu. yds. rock dredging, furnish and place 6200 cu. yds. rip rap and jetty.

Knitting Mill Machinery.—S. F. Pirkle, Winder, Ga.—To correspond with mf'rs of knitting mill machy.

Laundry Equipment.—Wilson-Hock Co. (Mchy. Dealers) City Point, Va.—Laundry equipment for small plant, including extractor, tumbler, washer, boiler and other necessary items; good, slightly used.

Lead Oxides.—Wills Storage Battery Mfg. Co., Inc., San Marcos, Texas.—Prices on lead oxides.

Locomotive.—D. C. Diphinstone (Mchy. Dealers) 408 Continental Bldg., Baltimore, Md.—18 ton geared locomotive, use in S. Carolina.

Locomotive.—W. H. Bradley, 219 Grant Bldg., Atlanta, Ga.—60 to 70-ton Shay locomotive, state price and location.

Mattress Construction.—U. S. Engr. Office, 329 Custom house, New Orleans, La.—Bids until Oct. 5 for construction of sinking mattresses at head of passes, Mississippi river; further information on application.

Metal Doors.—F. W. McIntire, Fairmont, W. Va.—Prices on metal doors for garage and storage building.

Mixer. (Concrete).—E. H. Harrington Kingtree, S. C.—Prices on new or used light concrete mixer.

Motors (Electrical).—Texas Tanners Supply Co., Houston, Tex.—1 to 5 H. P., A. C. electric motors.

Motor Truck.—Board of Awards, Richard Gwinn, City Register, Baltimore, Md.—Bids until Oct. 11 to 2 ton motor truck chassis with standard type dump body complete; information on application to Room 8, City Hall; A. E. Christliff, Highways Engr.

Motor.—Guadalupe River Navigation Co., Victoria, Tex.—Prices on new and second-hand 20 to 30 H. P., 3 phase, 220 volts induction motor, 900 revolutions.

Nitro Plant Equipment.—D. W. Kennedy, Richmond, Va.—Prices on nitro equipment for plant at Russellville, Ky.

Oak Boxes.—Wills Storage Battery Mfg. Co., Inc., San Marcos, Texas.—Prices on oak boxes.

Oil Engines and Generators.—F. W. Shaw, Rolla, Mo.—Prices on heavy oil engines and generators for plant at Newburg, Mo.

Paving.—City, H. A. Pulliam, Commr., Public works and City Engr., Paducah, Ky.—Bids opened Sept. 30 for 8700 sq. yds. concrete, bitulithic, rock asphalt or tarvia pavements; and 1800 lin. ft. concrete curb or gutter.

Paving.—M. C. Ayres, City Clk., Mount Sterling, Ky.—Bids opened Oct. 3 to pave about 1 mi. streets; brick, asphalt, rock asphalt or reinforced concrete; plans, etc. on file; W. R. McKee, Mayor.

Paving.—City Clk., Charleston, W. Va.—Bids until Oct. 8 for cement sidewalk on east half of outlot No. 40 on High St. between Ash and Locust Sts.; plans, etc., on file; F. E. Ross, City Engr.

Paving.—City Mgr., Lynchburg, Va.—Bids opened Oct. 2 to improve sidewalks on 5th and Dinwiddie Sts., and Rivermont Ave.; 1100 sq. yds. concrete; also concrete aprons

at cross street intersections along Dearing and Early Sts.; plans, etc., from R. W. B. Hart, Director of Public Works.

Paving.—S. H. Nance, Mayor, Pro-Tem, Rising Star, Tex.—Bids until Oct. 5 for street improvement; 1900 cu. yds. gravel or stone base; 18,000 gals. asphalt; 1200 lin. ft. curb and gutter; 14,000 lbs. reinforcing steel; plans, etc., from City Secy.

Paving.—Board of Awards, Wm. F. Broening, Prest., Baltimore, Md.—Bids until Oct. 11 to grade and pave with cement concrete, alley in Contrs. Nos. 91 and 92; A. E. Christliff, Highways Engr.

Paving.—D. Witherspoon, Mayor, Murphy, N. C.—Bids until Oct. 9 to pave certain streets; 8000 sq. yds. concrete pavement with integral curbs; plans, etc., on file or from R. L. Greenlee, Engr., Marion, N. C.

Paving.—John H. Zirkle, City Recorder, Martinsburg, W. Va.—Bids until Oct. 5 for concrete sidewalk and gutter on west side Faulkner Ave., and concrete sidewalk on west side of New York Ave.

Paving.—John H. Zirkle, City Recorder, Martinsburg, W. Va.—Bids until Oct. 26 for concrete sidewalk on east side of Maryland Ave.

Paving.—City Commrs., Laurel, Miss.—Bids until Oct. 9 for street paving; 19,865 sq. yds. brick pavement; concrete foundation; 16,160 sq. yds. gravel surfacing; 20,243 lin. ft. combined curb and gutter; 4000 sq. yds. concrete sidewalk; plans, etc. from City Clk.; J. H. Pace, Street Commr.

Paving.—City, Jefferson City, Mo.—Bids until Oct. 9 to pave several sections of Jefferson St. with bituminous macadam gravel, and improve Jackson St.

Paving.—O. F. Holcombe, Mayor, Houston, Tex.—Bids until Oct. 16 to pave Polk Ave. from Hutchins to Dumble Sts.; Milam St. from Preston to Polk Aves.; Hawthorne Ave. from Audubon Place to Roseland St.; La Branch St. from Texas to Holman Aves.; Hopkin St. from Pacific to Avondale Aves.; Brazos St. from Calhoun to Webster Aves.; Walker Ave. from Crawford to Hutchins Sts.; Richmond Ave. from Graustark Ave. to Mandell St.; Yoakum Blvd. from Richmond Ave. to Westheimer road; Chenevert St. from McGovern to Elgin Aves.; Clark St. from Lorraine St. to Liberty road; plans, etc., from City Engr.

Paving and Sewer Construction.—J. W. Thompson, City Clk., Groesbeck, Tex.—Bids until Oct. 10 for 11,860 sq. yds. pavement; 2450 lin. ft. combined curb and gutter; 320 lin. ft. 12-in. storm sewers; 2 catch basins; concrete culvert; 2½-in. or 3-in. vertical fiber brick on 5-in. concrete base; 3-in. vertical fiber brick on 5-in. rolled stone base; 2-in. Uvalde rock asphalt on 5-in. concrete base; 6-in. reinforced concrete; plans, etc. from Elrod Engineering Co., Engr., 3206 Elm St., Dallas, Tex.

Paving.—City Clk., Charleston, W. Va.—Bids until Oct. 9 for cement sidewalks on east side of Fulkerson Sts., between High and Main Sts.; and on west half of outlot No. 40, on High St. between Ash and Locust streets, etc. on file; F. E. Ross, City Engr.

Paving.—Lon H. Barringer, City Mgr., Charleston, W. Va.—Bids opened Sept. 29 to grade, pave and curb, etc., several streets; 19,000 sq. yds.

Also to lay 30,000 sq. ft. cement sidewalks; plans, etc., from Ernest Bruce, City Engr.

Paving and Sewer Construction.—P. A. Poag, City Secy., Monroe, La.—Bids opened Oct. 3 for paving Grammont St. from Grand to 7th; 2080 sq. yds. sheet asphalt and 4860 sq. yds. asphaltic concrete pavement; 4800 lin. ft. curb and gutter; Washington St. from Walnut to 9th Sts.; 2500

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

sq. yds. sheet asphalt and 7000 sq. yds. asphaltic concrete pavement; 5600 lin. ft. curb and gutter; 40 inlets; 9 manholes; 24-in. concrete and 21, 18 and 15-in. vitrified sewers; plans, etc., from City Engr.

Pier Removal.—U. S. Engr. Office, Room 1201, 537 S. Dearborn St., Chicago, Ill.—Bids until Oct. 24 for pier removal, dredging, etc., in Calumet Harbor, Ill.

Pig Lead.—Wills Storage Battery Mfg. Co., Inc., San Marcos, Tex.—Prices on pig lead.

Pipe (Water).—Temple Terraces, Inc., 801 Citrus Exchange Bldg., Tampa, Fla.—Bids until Oct. 12 on 37,000 ft. of $\frac{3}{4}$, 1, 1 $\frac{1}{2}$, 2, 3, 4, and 6-in. cast iron or galvanized water pipe, new or second-hand; give full particulars as to kind, size, lengths, quality, whether equipped with couplings, cost per lin. foot, f. o. b. cars Tampa; odd lengths acceptable if in good condition; alternative bids on genuine wrought iron pipe may be submitted.

Pipe (Cast Iron) and Fittings.—Board of Awards, Richard Gwinn, City Register, Baltimore, Md.—Bids until Oct. 11 to furnish and deliver cast iron pipe and fittings to water dept.; information obtainable at office of Wm. A. Megraw, Water Engr.

Planer and Matcher.—Chas. T. Lehman Machinery Co. (Machinery Dealers) 2300 Ave. A. Birmingham, Ala.—6x15 planer and matcher, high speed; prefer No. 91 Yates or same size Wods; modern and good condition.

Post (Iron).—Rev. W. A. Ray, 811 Mississippi Ave., Memphis, Tenn.—Iron post to support lecture room.

Printing Equipment.—S. S. Elam, Prest.-Mgr., Kentucky School News Co., 418 Logan St. Frankfort, Ky.—Invite bids on printing press, linotype, job press and type.

Pumps (Main Supply and Fire Booster).—Temple Terraces, Inc., 801 Citrus Exchange Bldg., Tampa, Fla.—Bids until Oct. 10 on 250 G. P. M. pump to operate with 5 to 15 ft. suction, discharge of 3200 lin. ft. of 6-in. pipe into tank, directly connected to 220 volt motor, 3 phase, 60 cycle, with temperature test of 40 degrees C; approved by National Board of Underwriters; alternative bids is requested for 500 G. P. M. pump with direct connected motor; also 500 G. P. M. booster pump to operate on 6-in. discharge pipe at 70 lb. pressure, directly connected to 220 volt motor, 3 phase, 60 cycle, approved by National Board of Underwriters; state efficiency, speed type, etc. of pump and H. P. of motor, name and address of mfr. also time of delivery.

Raffia.—Louis Stoughton Drake, Inc., 38 Everett St., Allston Station, Boston (34) Mass.—To purchase in quantity both natural and colored raffia; also to correspond with persons who would dye the natural raffia.

Rails.—D. G. Elphinstone (Mchy. Dealers) 408 Continental Bldg., Baltimore, Md.—15 mi. of 60 lb. rails, use in N. Carolina.

Road Construction.—State Road Comsn., Charleston, W. Va.—Bids until Oct. 20 for following:

Pleasants County, 1.9 mi. River road from Grape Island to Raven Rock; gravel surface; Project No. 58.

Tyler County, 1 mi. Sistersville-Middlebourne road, from Sistersville to top of River Hill; slag waterbound macadam; Project No. 3197;

Road Construction.—Tulsa County Comms., Tulsa, Okla.—Bids opened Oct. 2 for road improvements:

Between Section 23 and 26, Township 22 N. R. 12 E. from end of County pavement to pavement in Town of Skiatook.

5 and 6 mi. of section T, Tulsa County

State Highway; plans, etc., from Dan W. Patton, County Engr.

Road Construction.—Dallas County Comms., Court, Arch C. Allen, County Judge, Dallas, Tex.—Bids until Oct. 5 for 14.12 mi. State Highway No. 6; Lancaster road; macadam base; 2-in. bituminous topping; Nagle-Witt-Rollins Engr. Co., Dist. Engrs., Dallas.

Road Construction.—Oseola County Comms., E. L. D. Overstreet, Chrmn., Kissimmee, Fla.—Bids until Oct. 5 to grade 1 $\frac{1}{4}$ mi. Pine Island road; plans, etc., on file, or from J. E. Johnston, County Engr.

Road Construction.—Board of Awards, Wm. F. Broening, Prest., Baltimore, Md.—Bids until Oct. 11 to build 6750 sq. yds. concrete roadway in Cont. No. 189; plans etc., from A. E. Christliff, Highways Engr.

Road Construction.—Tarrant County, W. E. Mancy, County Auditor, Fort Worth, Tex.—Bids opened Oct. 2 to surface Grapevine-Cardinal road; 1-in. lime rock asphalt pavement, cold mix, 40 to 45-ft. wide on Main St., Grapevine, from College to Wall Sts.; plans, etc. from consulting Engr., Fort Worth.

Road Construction.—Greenville County Supvrs., Greenville, S. C.—Bids opened Oct. 4 for following:

4.038 mi. Durham Bridge Road; Federal Aid Project No. 183; 12,682 cu. yds. top-soil surfacing.

1.906 mi. Way's Bridge road; Federal Aid Project No. 185; 6249 cu. yds. top soil surfacing; plans, etc. from H. P. Dill, County Supvr. and State Highway Engr., 1626 Main St., Columbia, S. C.

Road Construction.—Louisiana Highway Comsn., Raymond Bldg., Baton Rouge, La.—Bids until Oct. 17 to grade, construct drainage structures and gravel surface following:

Sec. A—11.35 mi. Tallulah-Delta Highway; Madison Parish, Federal Aid Project No. 125.

Sec. B—7.10 mi. Tallulah-Delta Highway; Madison Parish, Federal Aid Project No. 125.

Sec. A—2 mi. Monroe-Ruston Highway; Ouachita Parish, Federal Aid Project No. 114; Warrenite bitulithic, Kentucky rock asphalt or Uvalde rock asphalt, on broken stone base.

Sec. B—16.7 mi. Monroe-Ruston Highway; Ouachita Parish, Federal Aid Project No. 114; W. T. Peterman, Chrmn., Louisiana Highway Comsn.; J. M. Fourmy, State Highway Engr., Baton Rouge.

Road Construction.—Alachua County, Board of Bond Trustees, Special Road and Bridge Dist. No. 1, W. R. Thomas, Chrmn., Gainesville, Fla.—Bids opened Oct. 3 for surface treating following:

Gainesville—Archer road, 80,000 sq. yds. Gainesville—Fairbanks—Waldo road 150,000 sq. yds.; plans, etc. from Walter G. Daniel, Dist. Engr., Baird Bldg.

Road Construction.—Fannin County, E. A. McMahon, County Auditor, Bonham, Tex.—Bids until Oct. 9 to improve certain roads in Road Dist. No. 4; plans, etc., from A. J. Goode, County Engr., Bonham or Pinckney R. Price, Res. Engr., Honey Grove.

Road Construction.—State Highway Dept., Jefferson City, Mo.—Bids opened Sept. 28 for following:

5 mi. State road from Centerville southward; Reynolds County, State Project, Route 21, Sec. 24.

4.931 mi. State road from Alton eastward; Oregon County, State Project, Route 42, Sec. 4; grade and construct drainage structures on all; J. H. Long, Div. Eng., Willow Springs, Mo.

Road Construction.—State Highway Dept., Jefferson City, Mo.—Bids until Oct. 12 for

6.586 mi. State road from Kennett southward; concrete and gravel pavement; Dunklin County, Federal Aid Project No. 190; Frank B. Newton, Div. Engr., Sikeston, Mo.

Road Construction.—State Highway Dept., Jefferson City, Mo.—Bids until Oct. 13 for 3.080 mi. State road from Hayti northward; gravel pavement; Pemiscot County, Federal Aid Project No. 173-A; F. B. Newton, Div. Engr., Sikeston, Mo.

Road Construction.—State Highway Dept., Jefferson City, Mo.—Bids until Oct. 6 for following:

Livingston County, 6.015 mi. State road from Chillicothe northward; State Aid Project No. 20,193; C. P. Owens, Div. Engr., Masonic Bldg., Macon, Mo.

Holt County, 3.306 mi. State road from Oregon north and east; State Aid Project No. 20,190; N. R. Sack, Div. Engr., Ballinger Bldg., St. Joseph, Mo.

Roofing.—Rev. W. A. Ray, 811 Mississippi Ave., Memphis, Tenn.—Tile or slate roofing for church 48x80 ft.

Water Works.—Water Committee of City of Palatka, Fla., John H. Randolph, City Engr.—Bids opened Oct. 12 for drilling one 10-in. well and all necessary labor, equipment, castings and specials necessary to drill same excepting that city will furnish steam for performing the work; well to be 3 ft. deep and have continuous flow of not less than 1200 gal. per minute at an elevation of 12 ft. above mean low tide in St. Johns River; information on application.

Rubber Battery Parts.—Wills Storage Battery Mfg. Co., Inc., San Marcos, Tex.—Prices on made of rubber battery parts.

Rubber (Seamless) Making Machinery.—Texas Tanners Supply Co., Houston, Tex.—Mchy. for making seamless rubber goods.

Scales (Hardware Automatic Counter).—Mohr-Jones Hardware Co., 319 6th St., Racine, Wis.—Second-hand hardware automatic counter scale, having a computing attachment and steel platform, capacity on dial approx. 10 to 20 lbs., with extra weights to make either 30 or 50 lbs. scale.

School Machinery and Supplies.—Board of Awards, Richard Gwinn, City Register, Baltimore, Md.—Bids until Oct. 11 to furnish machinery and supplies for public schools; plans with John H. Roche, Secy., Board of School Comms., Madison and Lafayette Aves.

Scows (Steel Dump).—U. S. Engrs. Office, Nashville, Tenn.—Bids until Oct. 23 for 3 steel dump scows; further information on application.

Sewer Construction.—City of Augusta, Ga., W. H. Wise, Comms. of Public Works.—Bids until Oct. 2 for constructing sewer system, on Macartan St. from Reynolds to Jones St., approx. 292, lin. ft. of 10-in. terra cotta pipe sewer; Troupe St., approx 1000 lin. ft. of 8-in. terra cotta pipe sewer with all necessary manholes, Y branches, etc.; plans and specifications on file with City Engr.

Sewer Construction.—Board of Comms., Sewer Improvement District No. 93, Little Rock, Ark.—Bids until Oct. 4 for construction of sanitary sewer system; work consists of approx. 71,000 ft. of sanitary sewer, together with disposal plant and all other appurtenances; plans, etc., on file at 407 Southern Trust Bldg.; Jas. H. Rice, Engr.

Sewer and Water Extension.—City of High Point, N. C.—John W. Hedrick, Mayor.—Bids until Oct. 10 for construction of sewer and water lines; approx. 30,000 lin. ft. of sanitary sewer, from 4 to 12-in. in diam, 10,000 lin. ft. of Class B cast iron water mains from 6 to 10-in. in diam. and 2000 lin. ft. of galvanized wrought iron pipe

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

from 1 to 2½-in. in diam., together with manholes, valves and other appurtenances; plans, etc., from Taplin & Perkins, Engrs.

Signs (Street) and Numerals.—Mayor Lewis, Pascagoula, Fla.—To correspond with mfrs. of street signs and numerals.

Steam Pumps.—City of Atlanta, Ga., Frank N. Inman, Bond Comsn.—Bids until Oct. 31 for building, delivering and erecting 15 and 30 M. G. D. steam driven centrifugal pumps, and 15 G. M. D. cross compound pumping engines in Chattahoochee River pumping station, also receives bids for building, delivering and erecting 15 and 30 M. G. D. steam turbine driven centrifugal pumps and 15 M. G. D. cross compound pumping engine in Hemphill pumping station; plans and specifications on file at office of Gen. Mgr. of Atlanta Water Works, City Hall, Atlanta, and P. H. Norcross, Conslt. Engr., 1404 Candler Bldg., Atlanta, Ga. and with Engineering News Record, New York City.

Steel Bars, (Commercial Flat).—Joseph Stolz & Son, Commerce Ave., Highbridge Station, New York City.—3000 commercial flat, soft steel bars, 1 1-4-in. x 3-16-in., 15 ft. long with holes in the center; holes starting 3-4-in. from each end and spaced 12 3-4-in. on centers; all holes drilled and countersunk for No. 16 wood screws; give best price f.o.b. destination.

Steel Bulkhead Wall.—City Comsn., E. P. Owen, Jr., Secy., Jacksonville, Fla.—Bids until Oct. 23 to furnish materials and construct wooden relieving platform, anchor pile system and fender pile system for steel bulkhead wall; work includes furnishing and placing 275,480 lin. ft. wood piling, 655,000 bd. ft. unumber, 3400 tons or 2841 pieces steel piling, 356 steel anchor rods; plans on file or with George B. Hills Co., Engr.

Steel Sash and Trim.—F. W. McIntire, Fairmont, W. Va.—Prices on steel sash and trim for garage and storage building.

Sugar.—U. S. Quartermaster, Marine Corps, Navy Bldg., 18th and B Sts.; receives bids until Oct. 9 for 240,000 lbs. sugar, delivery f. o. b., Quantico, Va.; 60,000 lbs. sugar, delivery f. o. b., P. J. Port Royal, S. C., and 60,000 lbs. sugar, delivery, Phila., Pa.; further information obtainable from Room 3207, Navy Bldg., 1-8th and B Sts.

Sulphuric Acid.—Wills Storage Battery Mfg. Co., San Marcos, Texas.—Prices on sulphuric acid.

Tin Shop Machines.—Texas Tinders Supply Co., Houston, Tex.—Second-hand tin shop machines.

Turbo Generator.—St. Louis Smelting & Refining Works of National Lead Co., International Life Bldg., St. Louis, Mo.—Mixed pressure horizontal steam turbo generator set, 1250 K. W. at 80 power factory to operate on 16 lb. pressure exhaust steam or 145 H. P. steam condensing generator to be 3 phase, 60 cycle, 2300 or 6600 volt, complete with all mechanical and electrical auxiliaries.

Turbine (Steam) and Accessories.—Sewerage and Water Board of New Orleans, A. G. Moffat, Secy., New Orleans, La.—Bids until Oct. 10 to furnish one 6000 K. W. steam turbine and accessories.

Uniforms and Caps.—City Comsn., Tampa, Fla.—Bids opened Oct. 3 for 60 police uniforms and caps; B. A. Redding, Pur. Agent.

Water Works.—City of Clearwater, Fla. Bids opened Oct. 4 to construct concrete foundation piers for water tanks and tower; plans on file with Supt. of Water Dept.

Veneer Plant Machinery.—H. L. McGall, Box 18, Charlotte, N. C.—Data and prices on mchy. to make veneer boxes and cases for packing cotton yarns and hosiery.

Water Works.—City of Winters, Tex., J. Frank Paxton, Mayor.—Bids until Oct. 6 for furnishing necessary materials, equipment and labor for constructing waterworks improvements, as follows: 13,100 cu. yds. concrete; 2600 sq. yds. riprap, 150 cu. yds. stone fill, 40 lin. ft. jetty, 500 cu. yds. over-haul; proposals, etc. on file with City Secy.

Water Works.—Water Committee of City of Palatka, Fla., John H. Randolph, City Engr.—Bids opened Oct. 12 for drilling one 10-in. well and all necessary labor, equipment, castings and specials necessary to drill same excepting that city will furnish steam for performing the work; well to be 3 ft. deep and have continuous flow of not less than 1200 gal per minute at an elevation of 12 ft. above mean low tide in St. Johns River; information on application.

Wharf Construction, Etc.—New Orleans, Port Comms., Suit 200, New Orleans Court Bldg., New Orleans, La.—Bids opened Oct. 5 to re-construct wharf and rat proof at Market St. landing; specifications with Supv. of Purchases, 1 Canal St.

Windows.—Rev. W. A. Ray, 811 Mississippi Ave., Memphis, Tenn.—Plain or Gothic windows for church.

Financial News

New Financial Corporations.

Fla., Clewiston—First Bank, capital \$15,000, inceptd. with John J. O'Brien, Prest.; Alfred H. Wagg, Vice-Prest.

Fla., Gainesville—Douglas Industrial Insurance Co., capital \$10,000, inceptd. with George W. Hawkins, Prest.; Charles S. Chestnut, Vice-Prest.

Fla., Miami—Peninsular Insurance Co., capital \$50,000, inceptd. by J. M. Graham, Harry B. Graham, Guy F. Sinclair.

Fla., Pompano—Bank of Pompano, capital \$15,000, inceptd. with H. F. Hammon, Prest.; A. P. Anthony, Vice-Prest.

Ga., Atlanta—Great Southern Fire Insurance Co. and Bankers' Fire Insurance Co., merge.

Ky., Hopkinsville—Pearl City Bldg. and Loan Assn., capital \$100,000, inceptd. by R. I. Woodard, S. U. Woolridge, N. B. West.

Ky., Nortonville—Nortonville Bank, capital \$20,000, inceptd. James R. Harrison, W. E. Furgeson, O. W. Price.

Md., Baltimore—Commercial Credit Co., Continental Guaranty Corp., may consolidate, A. E. Duncan, Prest.

Mo., Clayton—Williams, Fickes & Williams Investment & Realty Co., capital \$5000, shareholders: J. L. Williams, H. E. Williams, C. R. Fickes.

Mo., Herculaneum—Home Building & Loan Association, inceptd., capital \$200,000; Directors: J. E. Geisler, Dr. S. E. Woods, E. F. Horton.

N. C., Burlington—Morris Plan Bank, capital \$50,000, inceptd. with W. H. May, Prest.; D. E. Sellars, Vice-Prest.; J. M. Fix, Cashier.

N. C., King—Bank of King, Farmers & Merchants Bank, both have consolidated with Bank of Stokes County.

S. C., Charleston—Dime National Bank, conversion of Dime Bank and Trust Co., capital \$200,000.

S. C., Columbia—T. L. Brice Brokerage Co., capital \$5000, inceptd. with T. L. Brice, Prest.; W. T. Uderton, Vice-Prest.

S. C., Greenville—Farmers & Merchants Bank consolidated with Woodside Bank.

Tenn., Rockwood—City National Bank, capital \$50,000, inceptd. with John A. East, Prest.; A. C. Willey & Max Fritzsche, Vice Prest.; C. F. Smith, Cashier.

Tex., Alamo—First National Bank, conversion of First State Bank, capital \$25,000.

Tex., Fort Worth—Equitable Loan & Bldg. Co., capital \$50,000, inceptd. by E. D. Lea, J. L. Lea, Lea R. Ellis.

Va., Kenbridge—First National Bank, conversion of State Bank, capital \$45,000, W. S. Manson, Prest.

Va., Richmond—Independent Loan Co., capital \$15,000, inceptd. with E. S. Mitchell, Prest.; M. A. Mitchell, Secy.

New Securities.

Ala., Anniston—Improvement—City receives bids until Oct. 10, for \$56,000 bonds. Address The Mayor.

Ala., Fairfield—School—Otto Marks & Co., Birmingham, Ala., purchased \$73,000 bonds.

Ark., Ft. Smith—Paving—Henry Kaufman, Ft. Smith, purchased \$5000, 5% bonds.

Ark., Melbourne—Road—Poor & Co., Cincinnati, O., purchased \$325,000, 5½%, \$1000 denomination bonds.

Ark., Salem—Road—M. W. Elkins & Co., Little Rock, purchased \$400,000, 6% bonds.

Fla., Bushnell—Road—Sumter County contemplates voting in Nov. on \$593,000 bonds. Address County Comms.

Fla., Crawfordville—Roads—Wakulla County voted \$200,000 bonds. Address County Comms.

Fla., Jacksonville—Improvement—Duval County, Bd. of Comms., Frank Brown, Clk., receives bids until Oct. 25 for \$300,000, 5% \$1000 denom. bonds.

Fla., Miami Beach—Sewer and Street—City receives bids until Oct. 18 for \$218,000, 6% bonds.

Fla., Orange—Water—Orange County Comms. will vote on \$175,000 bonds. Address County Comms.

Fla., Plant City—Street—City plans voting on \$50,000 bonds. Address The Mayor.

Fla., Plant City—Paving and Sewers—City will vote Oct. 31, on \$65,000, 6%, \$1000 denomination bonds. Address The Mayor.

Fla., Tampa—School—Hillsborough County, Bd. of Public Instruction, J. E. Knight, Supt.; receives bids until Oct. 27 for \$60,000, 6%, \$1000 denomination bonds.

Fla., Tampa—Paving—Hillsborough County Comms., will sell \$3,000,000 bonds in two blocks of \$1,500,000 each.

Fla., Tavares—School—Lake County, Dist. 52, Supt. of Public Instruction, receives bids until Oct. 9 for \$7000, 6%, \$50 denom. bonds.

Ga., Sylvester—School—Sylvester School District, Worth County voted \$50,000 bonds.

Ky., Owingsville—Road—Bath County voted \$300,000 bonds. Address County Comms.

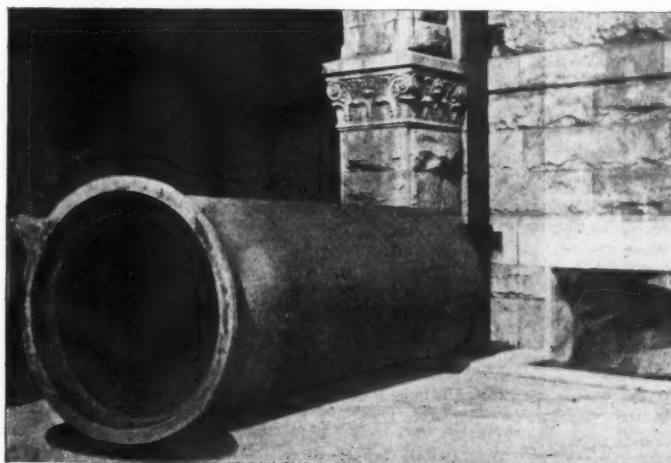
Ky., Salersville—Road and Bridge—Magoffin County, L. C. Bailey, Commr. receives bids until Oct. 3 for \$27,000, 5% bonds, at par and accrued interest.

La., Amite City—Street—Amite Bank and Trust Co. purchased \$16,000, 6% bonds at par and accrued interest.

La., De Quency—Light and Water—City voted \$120,000 bonds.

(Continued on Page 118.)

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.



PIPE SERVICE

One of five lengths of 48 inch Cast Iron Bell and Spigot pipe taken up at the Mount Royal pumping station, Baltimore, to allow for the installation of a Venturi meter. After thirty years of constant service this pipe is in perfect condition and will shortly be relaid.

Write us outlining your requirements.

United States Cast Iron Pipe and Foundry Co.

GENERAL OFFICE: BURLINGTON, NEW JERSEY

SALES OFFICES:

Philadelphia—1421 Chestnut Street

New York—71 Broadway

Pittsburgh—Henry W. Oliver Building

Dallas, Texas—Scollard Building

Chicago—122 South Michigan Boulevard

Cleveland, Ohio—1150 E. 26th St., N. E.

Birmingham, Ala.—1002 American Trust

Building

Cincinnati, Ohio—Dixie Terminal Bldg.

San Francisco—Monadnock Building

Minneapolis—Plymouth Building

Buffalo—957 E. Ferry St.

St. Louis—Security Building

Kansas City—Interstate Building.

For quotations and estimates, apply to nearest sales office

(Continued from Page 116.)

La., Leesville—Road—Vernon Parish Police Jury voted \$370,000 bonds for District No. 6.

La., Minden—School—E. S. Richardson, Secy. Parish School Board, receives bids until Oct. 10, for \$60,000, 6% school bonds.

La., Plaquemine—Light—Town will vote on \$150,000 bonds. Address The Mayor.

La., Ponchatoula—Water and Sewer—City voted \$130,000 bonds.

La., Shreveport—School—Caddo Parish School Bd., Dist. No. 1, C. E. Byrd, Supt.; receives bids until Oct. 17 for \$1,000,000, 5% bonds.

Md., Brunswick—Street and Water—Fredrick County Commrs., voted \$30,000 bonds.

Md., Hagerstown—Light—City will vote on \$30,000 bonds. Address The Mayor.

Miss., Batesville—School—Bd. of Supvrs. receives bids until Oct. 9 for \$19,500 bonds.

Miss., Collins—Light and Water—A. K. Triggitt & Co., Memphis, purchased \$30,000, 6% \$1000 denomination bonds.

Mississippi—Levee—Bank of Commerce & Trust Co., Memphis, Tenn. purchased \$20,000 bonds.

Miss., Brookhaven—Sewerage—City will receive bids until Oct. 4 for sewer bonds.

Miss., Louisville—School—Winston County, Board of Supvrs. receives bids Oct. 2 for \$10,000 bonds.

Miss., Marks—Bank of Commerce and Trust Co., Memphis, purchased \$475,000, 6% bonds.

Miss., Mayersville—Road—Issaquena County, voted \$230,000 bonds. Address County Commrs.

Miss., Meridian—School—Meridian National Corp. purchased \$29,811 bonds.

Mo., Linneus—Drainage—Wm. R. Compton & Co., and Mercantile Trust Co., both of St. Louis, purchased \$298,000, 5½%, \$1000 denomination bonds.

Mo., Sullivan—Water—City will issue \$30,000 bonds. Address The Mayor.

N. C., Aberdeen—School—Dist. voted Sept. 21 for \$75,000 bonds. Address J. W. Graham. (Lately noted.)

N. C., Beaufort—School—Trustees of the Atlantic Special Tax School Dist., M. L. Wright, County Supt., receives bids until Oct. 23 for \$6000, 6% bonds.

N. C., Beaufort—School—Trustees of the Camp Glenn consolidated School Dist., M. L. Wright, County Supt., receives bids until Oct. 23 for \$35,000, 6% bonds.

N. C., Kenansville—Road and Bridge—Duplin County, Board of Commrs., receives bids until Oct. 3 for \$300,000, 5%, \$1000 denomination bonds.

N. C., Kennansville—Road and Bridge—Duplin County Bd. of Commrs. receives bids for \$300,000, 5%, \$1000 denom. bonds.

N. C., Kings Mountain—Street—Town receives bids until Oct. 2 for \$16,000, 6%, \$1000 denom. bonds. Geo. E. Lovell, Treas.

N. C., Murphy—Street—The Hanchett Bond Co., of Chicago, purchased \$32,000, 6%, \$1000 denomination bonds.

N. C., Wadeville—School—C. E. McKinnon, Secy. Bd. of School Trustees, receives bids Oct. 2 for \$5000, 6%, \$1000 denomination bonds.

N. C., Warrenton—Warren County, Bd. of Supervisors, J. G. Sherard, Clk., receives bids until Oct. 6 for \$25,000, 6% bonds.

N. C., Wilmington—Street and Water—City Clerk, receives bids Oct. 10 for \$450,000 bonds.

Okl., Pawhuska—School—Dyke Ballinger

of Miami, purchased \$71,000, 5%, \$1000 denomination bonds.

Okl., Tulsa—Water—E. Edgar Honnold, Oklahoma City, purchased \$2,000,000 bonds at par and accrued interest.

Okl., Waggoner—Paving—City voted \$30,000 bonds. Address Commrs.

S. C., Charleston—Drainage—Stacy-Braun Co., Toledo, purchased \$500,000, 6% bonds at par and accrued interest.

S. C., Charleston—Improvement—City Commrs. sold \$23,000, 4½% bonds to Atlantic Savings Bank.

S. C., Lamar—Water—Comm. of Public Works, receive bids until Oct. 7 for \$35,000, 6% bonds. E. H. Pate, Secy.

S. C., Laurens—Street, Water and Debt—City sold \$170,000, 5% and 5½% bonds. (Lately noted.)

S. C., Spartanburg—Road—Highway Commission receives bids Oct. 14 for \$250,000 bonds.

Tenn., Athens—Street—L. B. Tigrett, Jackson, Tenn., purchased \$103,000 bonds.

Tenn., Chattanooga—Paving—Hamilton National Bank purchased \$8622, 6% bonds.

Tenn., Waverly—City Committee receives bids until Oct. 10 for \$16,000, 6%, \$1000 denomination bonds.

Tex., Clifton—Improvements—Liberty Central Trust Co., purchased \$80,000, 5% water extension, light plant and city hall bonds.

Tex., Dallas—School—Breg, Garrett & Co., 1201 Praetorian Bldg., purchased \$10,500 Chilton Independent School Dist. bonds.

Tex., Denison—Water, School and Sewer—City voted \$110,000 bonds. Address The Mayor.

Tex., Freeport—Streets—City will sell \$25,500 bonds. Address The Mayor.

Tex., Ft. Worth—Water and Sewer—City will vote on \$75,000 to \$80,000 bonds in November. Address The Mayor.

Tex., Gainsville—Sewer and School—City will vote Oct. 21 on \$25,000 bonds. Address The Mayor.

Tex., Galveston—School, Refunding—City Commrs. voted \$600,000 refund and \$520,000 school bonds.

Tex., Germantown—Schools—Independent School District sold \$200,000, 5% bonds at par. Address Commrs.

Tex., Harlingen—Sewer—City sold \$80,000 bonds. Address The Mayor.

Tex., Houston—Road-Port Improvements—Harris County Commrs. vote Nov. 7 on \$9,000,000 or \$10,000,000 bonds, including \$6,000,000 for roads, and \$3,000,000 or \$4,000,000 for ship channel improvement.

Tex., Jourdan—Tick—Atascosa County, W. H. Hill, Judge, receives bids until Oct. 2, for \$30,000 bonds.

Tex., New Castle—Water—W. L. Slayton & Co., Toledo, O., purchased \$15,000, 6% bonds.

Tex., Palestine—Road—Anderson County contemplates voting on \$1,500,000 bonds. Address County Commrs.

Va., Courtland—Road—Untermeyer Richardson & Moss, New York, and Tucker Robison & Co., of Toledo, purchased \$250,000, 6% bonds.

W. Va., Charleston—Road—State Sinking Fund Comm. sold \$668,000 5% bonds to the Kanawha Banking and Trust Co. at par and accrued interest.

W. Va., Wise—Caldwell & Co., Nashville, Tenn., purchased \$100,000, 5½% bonds.

Trade Literature.

Ventilating Fans.

A small folder issued by the Centrifugal Fan Company, 9-17 Seventeenth Ave., Newark, N. J., and entitled, "A New Era in Ventilation," gives some interesting and valuable information relating to their centrifugal exhaust fans which may be installed as desired horizontally or vertically upon roofs, horizontally out of doors on walls or windows, or else horizontally in doors with windows, mounting and with opening and closing device.

Engines for Contractors.

Bulletin 1001 of the Climax Engineering Co., Clinton, Iowa, contains a number of clean-cut illustrations showing some typical installations of Climax engines in contractors' machinery. The front cover page carries a striking picture of one of these engines hauling a train of road machines, the illustration being accompanied by the query: "How many horses would you use on a job like this?" Other illustrations in the bulletin are numerous, excellent and pertinent.

Of Interest to the South.

The Highway Magazine for October, published by the Armco Culvert & Flume Manufacturers Association, Chicago, Ill., contains several features pertaining to the South, including an illustrated article, "Mississippi's Highway Patrol System," by J. M. McBeath, chairman of the Mississippi State Highway Commission; "Traffic Studies in a Tennessee County Reveal Interesting Facts," by N. W. Dougherty, professor of civil engineering, University of Tennessee; and "Unique Drainage Method Saves Costly Road," the latter showing how a road in Fulton County, Ga., was preserved by the use of corrugated iron culverts. Gravel road construction and maintenance in Oklahoma are also discussed by George C. White, senior highway engineer of the United States Bureau of Public Roads, Oklahoma City. All of these articles are accompanied by pictures.

Two Superior Catalogs.

The Jeffrey Manufacturing Co., Columbus, Ohio, have recently issued and are distributing two fine catalogs, of which No. 277 relates to machinery for fertilizer plants and contains 35 pages of illustrations descriptions and data, including equipments that have a wide range of service in handling and treating materials in the fertilizer and allied industries. The other book, No. 368, concerns swing hammer pulverizers adapted for reducing all kinds of friable materials. This book consists of 42 pages of concise, accurate description, data and other material to gether with numerous shop illustrations and installation views showing the wide application of these pulverizers which are built in several types thus: "A" for general purposes, "B" for breakdown machines and fine grinding; "D" for fine grinding of limestone and similar rock. Both of these books are fine examples of the printer's art.

Book Review.

Conservation of Natural Gas in Kentucky.

By Willard Rouse Jillson, B. S., M. S., Sc. D. Louisville, Ky.; John P. Morton & Company, Incorporated, 1922.

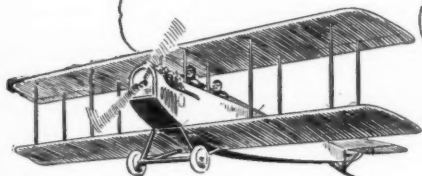
This book is a complete treatise of its subject embellished with forty-four new photographic pictures and diagrams. Its author is the State Geologist of Kentucky, and he has handled his work in a skillful and scholarly manner. "In the natural gas

(Continued on Page 120.)

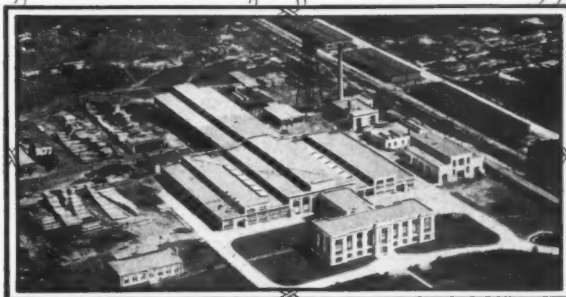
In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Barrett Specification Roofs

Bonded for
20 and 10 Years



Barrett Specification Roofs on Curtis Engineering Corp. buildings, Garden City, N. Y. Arch.: Bley & Lyman, Buffalo, N. Y. Gen. Cont.: John Cowper Co., Buffalo, N. Y. Roofer: Aug. Kuhnla, Brooklyn N. Y.



The Aircraft Industry is housed under Bonded Roofs—

TODAY great permanent structures are devoted exclusively to the development and manufacture of aircraft. The three buildings pictured on this page—the big factory of the Curtis Engineering Corporation, Garden City, N. Y., the brick and glass Airplane Building at the Philadelphia Navy Yard, and the substantial Research Building at Langley Field, near Hampton, Va.—offer graphic evidence of the amazing development of this new industry.

And these buildings, like many of the plants that house the other great industries of the country, are covered with Barrett Specification Bonded Roofs. These roofs, composed of successive layers of roofing pitch and felt, with a thick wearing surface of gravel or slag, combine proved durability with guaranteed freedom from upkeep expense. They also afford unequalled fire protection.

Barrett Specification Roofs are bonded against roof repair expense—Type "AA" for 20 years, Type "A" for 10 years. The Surety Company Bond, absolutely protecting the owner from maintenance expense, is issued free of charge on roofs of 5,000 square feet or larger, in towns of 25,000 or more, and in smaller places where our inspection service is available.

Copies of the Barrett Specification sent free on request.

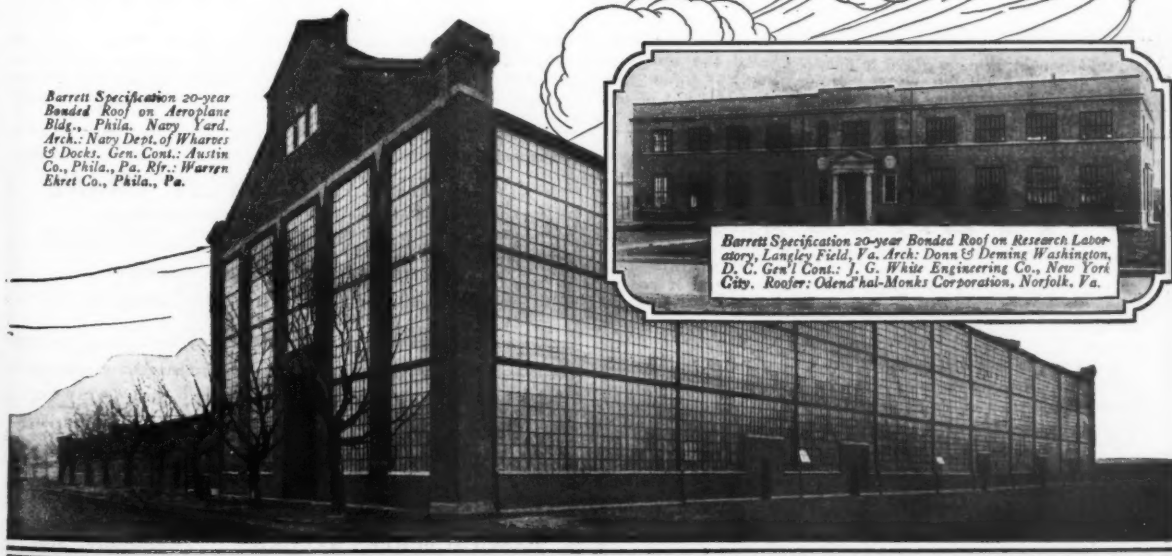
The Barrett Company



New York	Chicago	Philadelphia	Boston	St. Louis
Cleveland	Cincinnati	Pittsburgh	Detroit	New Orleans
Birmingham	Kansas City	Minneapolis	Dallas	Syracuse
Peoria	Atlanta	Duluth	Salt Lake City	Bangor
Washington	Johnstown	Lebanon	Youngstown	Milwaukee
Toledo	Columbus	Richmond	Lafayette	Bethlehem
Elizabeth	Buffalo	Baltimore	Omaha	Houston
Denver	Jacksonville	San Francisco		

THE BARRETT COMPANY, LIMITED: Montreal Toronto
Winnipeg Vancouver St. John, N. B. Halifax, N. S.

Barrett Specification 20-year Bonded Roof on Aeroplane Bldg., Phila. Navy Yard. Arch.: Navy Dept. of Wharves & Docks. Gen. Cont.: Austin Co., Phila., Pa. Rfr.: Warren Ekret Co., Phila., Pa.



Barrett Specification 20-year Bonded Roof on Research Laboratory, Langley Field, Va. Arch.: Dana & Deming Washington, D. C. Gen'l Cont.: J. G. White Engineering Co., New York City. Roofer: Odendahl-Monks Corporation, Norfolk, Va.

(Continued from Page 118.)

problem," he remarks in the preface, "the necessity for immediate conservation is perhaps more vividly apparent than in any of the other mineral resources. This is particularly true of the gas reserves of Kentucky. The really serious situation which has developed in our sister states of West Virginia, Ohio and Pennsylvania may be delayed in Kentucky if effective preservation measures are introduced at once." Mr. Jillson says also that it is impossible to accomplish without hardships to the few, benefits for the many; nevertheless it should

be done. He describes the different gas fields in the state, separately presenting a graphic picture of conditions. Commercial production of natural gas in Kentucky began in 1863, although from the time of early explorations in the state natural gas was known to exist and its inflammable qualities were recognized. In connection with his story Mr. Jillson comments upon wasteful methods of commercializing mineral resources—coal for instance, as well as oil and gas—and points out the way to profitably and economically realize upon natural wealth.

INDUSTRIAL NEWS OF INTEREST

Items of news about industrial, railroad or financial interests, building operations, construction work, municipal improvements, or the sale of machinery or the letting of contracts in the South or Southwest, are invited from our readers whether they are advertisers, or subscribers or not. We invite information of this character from readers in the North and West about their Southern business operations, as well as from Southern readers. News of value will be published just as readily when from non-advertisers as from advertisers.

Distribution and Sales Counsel.

Arthur M. Kennedy, 218 South Sixteenth Street, Philadelphia, Pa., is inviting accounts of manufacturing and sales organizations who desire to have analyzed their distribution problems and to have prepared their books of sales instruction and reference. Mr. Kennedy is a graduate of Princeton University and his business experience, it is stated, gained in New York and Philadelphia includes finance, production and sales.

Interesting Prize Contest.

The National Slate Association, 757 Drexel Building, Philadelphia, Pa., has offered two prizes of \$100 each, one for the best slogan to promote the use of slate and the other for the best design for a slate industry insignia, the contest to close on October 20. The manifold uses to which slate is put nowadays will make the contest exceedingly interesting. Inquiries for further information must be sent to "Slate Slogan or Insignia Contest," at the address here given.

Financing Large Building Work.

James L. Wilmeth, formerly chief clerk of the United States Treasury Department, and more recently Director of the Bureau of Engraving and Printing, has become associated with the Washington office of the Cleveland Discount Company, with offices in the Munsey Building. In his new work Mr. Wilmeth will be associated with George A. Harris, who is general manager for the company in the territory which includes the District of Columbia, Virginia, North Carolina and Tennessee, the company being engaged in financing large building operations and in selling first mortgage investments.

Joint Selling Agents Appointed.

The increased demand for corrugated metal roofing and siding protected with asbestos and asphalt has resulted in the appointment of Johns-Manville, Inc., as joint selling agents by the H. H. Robertson Co., and hereafter all asbestos protected metal roofing, siding accessories and ventilators will be manufactured and shipped from the Robertson plant at Ambridge near Pittsburgh, Pa. In their manufacture Johns-Manville asbestos saturated felts will be used. Metal so protected is largely used for all conditions where unprotected metal or other perishable roofing would quickly disintegrate and this material is now recognized as standard for skeleton frame structures.

A Fine Exhibit.

The Morse Chain Co., Ithaca, N. Y., will exhibit a full line of chain samples at the Southern Textile Exposition, Greenville, S. C., October 9-25, their display being at Space 468-469 and there will be in attendance representatives of the company qualified to give engineering advice concerning transmission problems of textile industries. There will be a five-horsepower chain drive in operation mounted on the Morse Universal bracket attached to a standard spinning frame, besides a one-horsepower motor and Silent Chain drive on a knitting frame. A prominent feature of this exhibit will be a Balopticon, (manufactured by the Bausch & Lomb Optical Co., Rochester, N. Y.), which will automatically and continuously show on a screen views of Morse chain drives, besides views of the plant and of scenery around Ithaca.

Large Machine Tool Merger.

The Consolidated Machine Tool Corporation of America, manufacturers of machine tools, railway and shipyard equipment, 17 East Forty-Second Street, New York, is a merger of the Betts Machine plant and the Ingle Machine plant of Rochester, N. Y.; the Hills & Jones plant of Wilmington, Del.; the Newton Machine Tool Works, Philadelphia, Pa.; the Modern Tool plant, Erie, Pa.; the Colburn Machine Tool plant, Cleveland, Ohio; and the Dale Machinery Co., of New York City and Chicago, Ill. The officers are W. H. Marshall, chairman of the board of directors; C. K. Lassiter, president; J. J. Dale, A. H. Ingle, H. J. Breckenridge, H. J. Bailey and H. W. Champion, vice-presidents; R. R. Lassiter, secretary; and O. D. Miller, treasurer. In addition to its plant selling organization the corporation will have district sales offices at New York, Philadelphia, Pittsburgh, Chicago and St. Louis. All of these are in operation, excepting the St. Louis office, which will soon be opened.

Heavy Demand for Cooling Machinery.

Among the more than 400 sales and installations of ice-making and refrigerating machinery made by the York Manufacturing Co., York, Pa., since July were many in various places of the South as follows: Takoma Park, D. C.; Natchez, Miss.; Houston, Tex.; Roncerverte, W. Va.; Washington, D. C.; Napoleonville, La.; Baton Rouge, La.; Harvey, La.; Hico, Tex.; East Point, Ga.; Memphis, Tenn.; Kirksville, Mo.; Oklahoma City, Okla.; El Paso, Tex.; Fayette, Mo.; Homer, La.; Nashville, Tenn.; Medill, Okla.; Stroud, Okla.; Neosho, Mo.; Gramercy, La.; Winchester, Tenn.; Corpus Christi, Tex.; Dallas, Tex.; New Albany, Miss.; Blowing Rock, N. C.; Dublin, Tex.; Chestertown, Md.; Galveston, Tex.; Kansas City, Mo.; Springfield, Tenn.; Atlanta, Ga.; Kirkwood, Mo.; College Station, Tex.; Louisville, Ky.; Abilene, Tex.; Springfield, Mo.; Greensboro, N. C.; Fulton, Ky.; St. Louis, Mo.; Jackson, Tenn.; Hannibal, Mo.; Highcoal W. Va.; New Orleans, La.; Anderson, S. C.; Baltimore, Md.; Monroe, La.; Chattanooga, Tenn.; Columbia, S. C.; Beaumont, Tex.; Mexia, Tex.; Fort Worth, Tex.; Independence, Mo.; Betterton, Md.; Lynchburg, Va.; Frankfort, Ky.; Georgetown, S. C.; Belair, Md.; Richmond, Va.; LaPorte, Tex.; Charlottesville, Va.; Fairmont, W. Va.; St. Petersburg, Fla.; Macon, Ga.; Mandeville, La.; Oak Hill, W. Va.; Laurel, Miss.; Masontown, W. Va. At several of these points half a dozen installations were made for different plants and at some other places there were two or more made.

PATENTS TRADE-MARKS AND COPYRIGHTS

Before disclosing an invention the inventor should write for our blank form, "EVIDENCE OF CONCEPTION." This should be signed and witnessed, and if returned to us, together with model or sketch and description of the invention, we will give our opinion as to its patentable nature.

Our Illustrated Guide Book, "HOW TO OBTAIN A PATENT," sent Free on request. Contains full instructions regarding Patents and Trade-marks.

VICTOR J. EVANS & CO., - Patent Attorneys

New York Offices Philadelphia Offices Pittsburgh Offices
R 1003 Woolworth Bldg 135 S. Broad Street 514 Empire Bldg.

Chicago Offices, 1114 Tacoma Bldg.

Main Offices: 749 9th Street N. W.

WASHINGTON, D. C.

NORTHWEST CRAWLER CRANE

All-Purposes

Goes Anywhere

Can be used with clam shell buck-Equipped with perfected crawler or, dragline bucket, lifting magnet, mechanism; moves about the plant; or grappling hooks.

NORTHWEST ENGINEERING COMPANY

Works: Green Bay, Wis.
General Sales Office: 28 E. Jackson Blvd., Chicago, Ill.
Eastern District Sales Office:
Room 308, Singer Bldg., New York, N. Y.

BLUE BOOK OF SOUTHERN PROGRESS

"The information found in this book is most beneficial. Could the contents be known to the business men of the South, it would have a far-reaching effect toward restoring the business confidence and bringing about prosperity again. Every man, woman and child in the United States should read the Blue Book of Southern Progress. I will admit that I really have learned more about the South from it than I have by living in the South forty years. Single Copies 50c. MANUFACTURERS RECORD Baltimore, Md.

North Carolina Destined to Be One of the Great Manufacturing States of America



North Carolina is a state of remarkable resources and remarkable achievements.

Stretching from the Atlantic Ocean on the east to the Piedmont Blue Ridge and the heart of the Appalachian Mountains on the west, this state has the advantage of an extensive variety of soil and climate for promoting diversified farming, and likewise a range of mineral and timber resources that offer the bases for many kinds of successful industries.

Power in abundance is made available through developed hydro-electric plants, having transmission lines traversing the greater part of the state, while extensive coal fields are nearby.

Native American labor is plentiful and is readily adaptable to industrial pursuits.

The Seaboard Air Line Railway crossing the state North and South and East and West, covers the main centers of activity, while the state's fine road system, which is being materially added to under a \$50,000,000 bond issue, gives ready access by highway to shipping points.

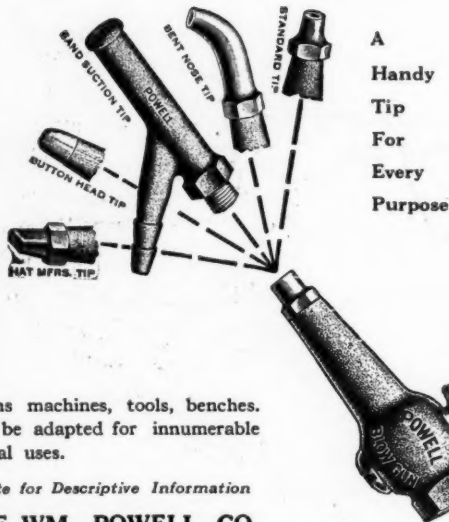
In the Seaboard territory are many good opportunities for the location of industries and for the establishment of profitable farming operations.

Full co-operation will be extended to those seeking further information.

JESSE M. JONES, General Development Agent
SEABOARD AIR LINE RAILWAY
 Room 734 Royster Building NORFOLK, VA.

POWELL VALVES

BLOW GUN AIR VALVE
Puts Compressed Air Where You Want It



Cleans machines, tools, benches.
Can be adapted for innumerable
special uses.

Write for Descriptive Information

THE WM. POWELL CO.
CINCINNATI, OHIO
1204 Draper Street

A Well-Known New York Banker

Says:

"The place of advertising in the present economic system is thoroughly well established."

Goodwill has come to be a vital factor in the success of any business, and goodwill can only be created by right and persistent advertising.

A manufacturer who advertises honestly the stability and quality of his goods sets for himself a standard of production. He makes a treaty of faith with the buying public which he must uphold at any cost.

Frequently, for the purpose of promotion, the manufacturer needs financial assistance.

The time is fast approaching when bankers, having carefully investigated the standing of a manufacturer desiring a loan, will ask this leading question:

"What is his advertising appropriation?"

{ Published by the MANUFACTURERS RECORD in }
{ co-operation with The American Association of Adver- }
{ tising Agencies. }

WE BUY MUNICIPAL BONDS

We are interested in the purchase of Southern Municipals including road, school, county, drainage and levee bonds.

M. W. ELKINS & CO.

Southern Trust Bldg.

Little Rock, Ark.

TODD & McCOLLOUGH

Members of

AMERICAN SOCIETY OF CERTIFIED PUBLIC ACCOUNTANTS

Auditing, Cost and Accounting Systems,
and Federal Tax Service.

No. 328 South Tryon St.

Charlotte, N. C.



THE HOUSE OF SERVICE

HAMMERMILL LETTER HEADS

For Bank, Mill, Mine, Factory and Commercial House

8 1/2 x 11—Full 20 lb. Weight

1000—\$5.35	5000—\$16.75
2000—8.70	10000—28.50

Shipped 48 Hours After Receipt of Order
Charges prepaid to your railroad station
Samples on request

LAREW PRINTING CO., Knoxville, Tenn.

A. T. BELL & CO.

SECOND NATIONAL BANK BLDG.

JACKSONVILLE, FLA.

TOLEDO, OHIO

CHICAGO, ILL.

COUNTY
SCHOOL

MUNICIPAL
BONDS

CITY
DISTRICT

CORRESPONDENCE INVITED FROM OFFICIALS & CONTRACTORS

BLACK & COMPANY

(WILMER BLACK, C. P. A.)

CERTIFIED PUBLIC ACCOUNTANTS

OFFICES:

Suite 1208 GARRETT BUILDING	-	BALTIMORE, MD.
6 HAMILTON ROW	-	HAGERSTOWN, MD.

YOUNG & SELDEN COMPANY

MANUFACTURING

Bank and Commercial Stationers

BALTIMORE, MD.

The Oscar T. Smith Company

Manufacturing Bank Stationers

407-9-11 E. SARATOGA STREET

BALTIMORE, MD.

OSCAR T. SMITH
President

THE BANK OF ALABAMA

ENSLEY, ALABAMA

R. A. TERRELL
J. W. MINOR
FOSTER HAMILTONPresident
Vice-President
Cashier

We Solicit Your Business

MARINE BANK & TRUST COMPANY

New Orleans, Louisiana

Capital and Surplus - \$2,300,000.00
 General Banking - Domestic and Foreign
 Correspondence Invited

MARYLAND TRUST COMPANY

BALTIMORE

Transacts a General Trust and Banking Business

Correspondence and interviews invited

CAPITAL, \$1,000,000

Delaware Corporations
 Forms, Law and Pointers
Estimates of Cost Furnished Without Cost
DELAWARE REGISTRATION TRUST CO.
 100 West Tenth Street
 Wilmington, Del.

J. Ernest Smith, President and General Counsel.
 Chas. Warner Smith, Vice-President.
 Harry W. Davis, Secretary and Treasurer.

We Buy**SOUTHERN
MUNICIPAL
BONDS**

Correspondence Solicited

CALDWELL & CO., NASHVILLE, TENN.

New York Chicago St. Louis
 Detroit Cincinnati Chattanooga Knoxville

WE BUY**Municipal Bonds**

THE LEWIS S. ROSENSTIEL COMPANY
 UNION TRUST BUILDING - CINCINNATI, O.

**We
Buy
Bonds****Southern and Western
Municipal Bonds**

Wire at our expense

CAMPBELL & KINSEY

230 Superior St. Toledo, Ohio

Branches: 618 Penobscot Bldg. Detroit; 313 Dixie Terminal, Cincinnati.

We Buy Bonds

City, County, School and Road, from
 Municipalities and Contractors

WRITE

THE PROVIDENT SAVINGS BANK & TRUST CO.
 CINCINNATI OHIO

Investment Bankers

are offered

Power and Light Securities

issued by companies with long records of substantial earnings.

We extend the facilities of our organization to those desiring detailed information or reports on any of the companies with which we are identified.

Electric Bond and Share Company

(Paid-up Capital and Surplus, \$29,000,000)

71 Broadway New York

**ENTIRE BOND ISSUES OF
 SUCCESSFUL INDUSTRIALS PURCHASED**

Offerings Invited

Resources - - - - - \$21,000,000

Established 1884

Mercantile Trust and Deposit Co.

OF BALTIMORE

A. H. S. POST, President. F. G. BOYCE, JR., Vice-President.

WANTEDCity,
County,
School District
Road District**BONDS**

Offerings of entire issues of the above bonds solicited

HAROLD G. WISE & COMPANY

Established 1915, HOUSTON, TEXAS

We Buy Bondsand invite inquiries from municipalities
and contractorsWe deal in city, county, district, school, road, lighting,
water works and other municipal issues.**A. C. ALLYN & CO.**

71 W. Monroe St. Chicago, Ill.

WE BUY MUNICIPAL BONDS

Write us if your community is con-
 templating issuing bonds or has
 bonds to sell.

THE W. H. SILVERMAN CO.

309 Mercantile Library Bldg., Cincinnati, Ohio

NOTICE TO CONTRACTORS

We want to buy bonds issued by cities, towns
 counties, school, road or drainage districts that you
 may be able to take in exchange for work. Address
 us at our nearest office.

W. L. SLAYTON & CO.

New Orleans, La. Toledo, Ohio Tampa, Fla.
 Chicago, Ill. Glasgow, Mont.

New Orleans Industrial Canal to Be Opened Latter Part of Year—Plans for Inner Harbor and Industrial Center Development Under Way.

New Orleans, La., Sept. 23—[Special.]—New Orleans' Industrial Canal—which by its sponsors is considered to be the future center of manufacturing and commercial enterprise in the city's drive for the international business of the Mississippi Valley, Latin America and the Orient—will be under strict public control by the Dock Board, when it goes into operation the latter part of this year. The industrial sites, however, situated at some distance from the waterway and connected thereto by lateral extensions, will be left to private enterprise for developing.

This is the first step in working out the policy for the Industrial Canal. The next thing to be decided is the question of rates for the use of wharves that will be built along the canal, and for the privilege of using laterals radiating to the industrial sections that will be opened.

This is probably the greatest economic problem before New Orleans to-day, not only because of the money that has been put into the canal—\$20,000,000 already, with about \$5,000,000 more needed to widen the canal to 600 feet and purchase necessary property on both sides, besides building wharves—but also because the development of waterfront facilities has been held in abeyance pending the completion of the canal, with the result that the river wharves are now delivering almost their full capacity of business, and the foreign trade movement is growing all the time.

During the year ending August 31, 1921, according to J. F. Coleman, consulting engineer of the Dock Board, the gross tonnage of vessels coming to New Orleans was 9,969,715. The capacity of the wharves, including the half-mile army supply base wharf, recently destroyed by fire, was 11,000,000 tons a year. The margin of safety, therefore, is only about 1,000,000 tons.

Wharf construction should anticipate the business five years, says Mr. Coleman. He estimates that the tonnage will increase, and that the berthing space should be increased, in linear feet as follows during the next few years:

Year.	Tonnage Forecast.	New Berthing Required, Linear Feet.
1923	12,200,000	2222
1924	12,700,000	2222
1925	13,300,000	2666
1926	13,900,000	2666
1927	14,600,000	3111
1928	15,300,000	3111
1929	16,000,000	3111
1930	16,800,000	3555

According to A. M. Lockett, vice president of the Dock Board who has been making a special study for the past year on the Industrial Canal policy, this facility now invests the Dock Board with the responsibility of fostering the industrial life of the city. Formerly it was charged with responsibility only for the commercial life.

While development on the canal will not be at the expense of industry or commerce now located on the river front, he points out that if the canal offers a location where the necessary wharf structures can be built at lower first cost or of more substantial construction and durable type, and the cost of maintenance of such structures will be lower than on the river front, the canal's opportunities should be seized and developed to the utmost.

He continues: "While the process of developing the banks of this canal and such laterals as may be excavated for industries and harbors will, perhaps, be slower than is expected by its most enthusiastic advocates, it seems reasonable to predict that some day there will be existing on the canal and in the vicinity one of the greatest port and industrial developments in the world, for the two basic reasons that the nation needs such a development and the location is ideal for it."

The determination to leave to private interests the develop-

ment of adjacent industrial sites does not mean that there is any slackening in the policy of public ownership and control, on which the Dock Board is founded, Mr. Lockett declares:

"Public ownership and public control of the harbor facilities and all operations having primarily to do with the commerce of the port must forever be maintained to such a degree that by no combination of circumstances can the commerce of the port be even hampered by private ownership or private control of any harbor facility."

Both pier-type and quay-type wharves will be built along the canal.

The working out of an industrial canal policy includes the developing of a most thorough co-operation on the part of (1) the city, in paving the streets leading to it, so that freight can be economically trucked and drayed; (2) the Public Belt railroad, in making adequate track extensions; (3) the Sewerage and Water Board in extending its facilities; (4) the street car, gas and electric company in extending the public utilities.

New Transmission for Automobiles to Give Steady Power and Eliminate Clutch.

Olin P. Miller, Woodland, Ga., has invented and patented a new type of transmission for automobiles. In its application, the inventor claims any gear ratio from neutral to high speed may be effected without interrupting a steady flow of power from the motor to the rear wheels, and this transmission delivers power as efficiently and smoothly when a change of gear ratio is being made as when the shift lever is locked in position. An important feature is his claim that no clutch is necessary when his device is used.

In this transmission the drive shaft is squared and thereon is placed a drive cam which revolves with the shaft and is slidable along the shaft longitudinally. Held against the face of the cam by a spring is a drive rack fixed in slides allowing a straight line movement. A free roller is employed to eliminate friction. Motion of the rack is imparted to the wheel by cogs, pawls and ratchet wheels. The complete cam has two members formed integrally and placed "opposite," and there are two drive racks and two sets of the ratchet wheels. By a simple arrangement the highest drive of the cam is obtained by shifting the cam to a point where the drive racks and ratchet mechanism are idled, giving a direct gear connection between drive and driven shafts. The cam drive and its associated mechanism are used only when a lower ratio than "high" is desired. For reverse, a gear is "set in" between the transmission and differential. Complete drawings and specifications may be secured from the inventor by those interested.

Florida Guide and Almanac.

The 1922 edition of the Florida Guide and Almanac has been issued by the Florida Guide Publishing Company, Jacksonville, Fla. The book is of 145 pages of handy pocket-size and contains general information and history of Florida with many facts of interest to the tourist and business man. Among the various subjects presented are: hotels, fishing, climate, golf courses, schools, cities, automobile routes, tourist camps, statistics, State boards, State officials, agriculture, population, and civic and commercial organization.

Desires American Merchandise.

H. O. EGAN COMPANY, Belize, British Honduras, C. A.—We are interested in handling and representing American products. We buy direct and shall be pleased to receive catalogs of the following: Articles of general wear for men, women and children, general lines of cotton and woolen goods, boots and shoes, groceries, confectionery, toilet preparations, jewelry, sporting goods, musical goods, notion specialties, bicycles, automobile accessories, typewriters, adding machines, rugs, carpets, etc.

The Automobile's Part in America's Prosperity and Development.

That the present prosperity in the automobile business means employment for two-and-a-quarter million people is a statement made by General Manager Reeves, of the National Automobile Chamber of Commerce, speaking before a recent convention of motor and accessory manufacturers.

The manufacture of the completed vehicle requires labor in accessory, plate glass, fabric, metal and other mills, in mines, farms, forests, and transportation.

It is stated that 22 per cent of the aluminum supply, 4 per cent of the annual production of iron and steel, 20 per cent of tin, 16 per cent of the copper output, and 30 per cent of plate glass manufacture are used in the making of motor cars and trucks. In addition to the 200,000 men working in automobile plants, to the hundreds of thousands of professional

chauffeurs and of retail garage employees, there are about 250,000 accessory factory workers, 150,000 tire dealers and salesmen and thousands more in allied retail trades.

Production of motor vehicles this year will exceed 2,000,000, of which 10 per cent are trucks. About 3,000,000 cars and trucks are owned on the farms of the country, and indications are that the use of motor transportation increases the average farmer's efficiency by 68 per cent. From a recent survey it was found that around sixty cities there are over 135,000 suburban homes depending chiefly on motor cars and motor trucks for transportation. This release of housing pressure on the cities and the settling of families on less expensive land gives promise of lower rentals.

Competition in developing cars and trucks has caused them to be more completely equipped than ever before, and more value for the money is being given today in motor vehicles than in any previous time in the history of the industry.



Bids close October 30, 1922.

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., October 2, 1922.—**SEALED PROPOSALS** will be opened in this office at 3 P. M., October 30, 1922, for Alterations, Etc., to the United States Post Office, Court House, and Custom House, at Richmond, Va., including Alterations to adjoining buildings and approaches. Drawings and specifications may be obtained from the Custodian at Richmond, Va., or at this office in the discretion of the Supervising Architect, Jas. A. Wetmore, Acting Supervising Architect.

Bid close October 10, 1922.

U. S. Engineer Office, Mobile Ala.—Sealed proposals will be received here until 11 o'clock A. M., October 10, 1922, and then opened, for the construction of one 100-foot Diesel Electric towboat. Further information on application.

Bids close October 16, 1922.

\$28,000 6% Improvement Bonds

Chipley, Fla.

Notice is hereby given that sealed bids will be received by the City of Chipley, Fla., until 12 o'clock noon, Monday, October 16, 1922, for the sale of Twenty Eight Thousand Dollars Improvement Bonds of said City, bearing six per cent interest from their date, payable semi-annually, dated September 1, 1922. Fifty of said bonds are in denomination of \$500 each, and ten of said bonds are in denomination of \$300 each, and five \$500 bonds and one \$300 bond will mature each year, commencing one year after date, until the whole issue is matured. Said bonds are payable at the Chase National Bank, New York City.

These bonds are issued for the purpose of making payment for certain street paving and storm sewers constructed in said City and are secured by improvement liens as well as the general credit of the City of Chipley.

Bids will be received for the whole or any part of the issue and a certified check for five per cent of each bid, payable to the City of Chipley, shall accompany each bid as a guarantee of good faith.

The City Council reserves the right to reject any and all bids. Address bids to the Clerk of the City of Chipley, Chipley, Florida.

EB STANDERFER, Clerk.

RATE: 35 cents per line per insertion.
PUBLICATION DAY: Thursday.

FORMS CLOSE 4 P. M. Monday.
DAY LETTER: When too late to send copy by mail to reach us by 4 P. M. Monday, forward by day letter.

THE DAILY BULLETIN OF THE MANUFACTURERS RECORD: Published every business day; gives information about the industrial, commercial and financial activities of the South and Southwest.

The Daily Bulletin can be used to advantage when copy cannot reach us in time for publication in the Manufacturers Record before bids are to be opened, or when daily publications are necessary to meet legal requirements.

The same rate applies—35 cents per line per insertion.

Bids close October 16, 1922.

\$196,000 Drainage Bonds

West Palm Beach, Fla.

Bids will be received by the Treasurer of the Highland Glades Drainage District on Monday, October 16, 1922, at 11 o'clock A. M., at Room No. 1, Post Office Building, West Palm Beach, Fla., for the sale of \$196,000.00 drainage bonds of the Highland Glades Drainage District.

The right is reserved to reject any and all bids.

A certified check for two per cent of the total amount to accompany each bid.

C. E. CHILLINGWORTH,
Treasurer.

Bids close October 17, 1922.

\$20,000 6% Public Improvement Bonds

Kingsport, Tenn.

Sealed bids will be received by the Board of Mayor and Aldermen of the City of Kingsport, Tenn., until Tuesday, October 17, 1922, at 7:00 P. M., Eastern Standard Time, for Twenty Thousand (\$20,000) Dollars, Public Improvement Bonds of \$1000 denomination, maturing October 1st, 1942, bearing six percentum per annum interest, payable at the Hanover National Bank, New York, N. Y., on the first day of April and October of each year until maturity. Bids must be marked as such, addressed to the undersigned and accompanied by a certified check for \$200, made payable to the City Treasurer, City of Kingsport, Tenn., as evidence of good faith. The opinion of Honorable John C. Thomson, of New York, N. Y., or some other reputable bond attorney will be furnished, approving the validity of these bonds. The right is reserved to reject any or all bids received.

F. L. CLOUD,
Assistant City Manager.

Bids close October 16, 1922.

\$100,000 Drainage Bonds

West Palm Beach, Fla.

Bids will be received by the Treasurer of the Palm City Drainage District on Monday, October 16, 1922, at 12 o'clock M., at Room No. 5, Post Office Building, West Palm Beach, Fla., for the sale of \$100,000.00 drainage bonds of the Palm City Drainage District.

The right is reserved to reject any and all bids.

A certified check for two per cent of the total amount to accompany each bid.

C. E. CHILLINGWORTH,
Treasurer.

Bids close October 31, 1922.

Proposal for Building, Delivering and Erecting 15 and 30 M. G. D. Steam Pumps in the Hemphill Pumping Station for the City of Atlanta, Ga.

Sealed proposals for building, delivering and erecting 15 and 30 M. G. D. Steam Turbine Driven Centrifugal Pumps and 15 M. G. D. Cross Compound Pumping Engines for the City of Atlanta, Ga., will be received by the Purchasing Agent of the City of Atlanta at the City Hall until 2:30 P. M., on the 31st day of October, 1922.

The work will consist of building, delivering and erecting complete with all accessories, one or more Steam Pumps on foundations erected by the City of Atlanta in the Hemphill Pumping Station. The sizes and type of pumps will be determined after receiving bids.

Each proposal must be accompanied by a certified check payable to the City of Atlanta, in an amount equal to five (5%) per cent of the bid, as a guarantee that the contract will be entered into if awarded. A bond of one hundred (100%) per cent of the contract price will be required.

Plans and specifications are on file at the office of the General Manager of the Atlanta Water Works, City Hall, Atlanta, Ga., P. H. Norcross, Consulting Engineer, 1404 Candler Building, Atlanta, Ga., and with the Engineering News Record, New York City. Bidders may obtain copies of the specifications from the Purchasing Agent by enclosing check for twenty-five (\$25.00) dollars payable to the City of Atlanta, and to be held until return of specifications in good condition. The City reserves the right to reject any and all bids.

No proposal will be entertained unless made on the form, and sealed in the envelope furnished by the City of Atlanta.

PURCHASING AGENT,
City of Atlanta, Ga.

Bids close October 23, 1922.

Municipal Dock Improvements

Jacksonville, Fla.

Sealed proposals will be received by the City Commission of the City of Jacksonville, Fla., until three o'clock p. m., on Monday, October 23, 1922, for furnishing materials and constructing Wooden Relieving Platform, Anchor Pile System and Fender Pile System and for the construction of a Steel Bulkhead Wall. All such work shall be in accordance with plans and specifications therefor on file in the office of the City Commission, and of the George B. Hills Co., engineers. Copy of plans and specifications may be obtained from the Secretary of the City Commission, Room 13, City Hall, upon payment of \$2.50 to cover cost of printing. A certified check on a Jacksonville bank or on some national bank in the sum of \$2000, made payable to Chairman City Commission, must accompany each bid as a guarantee that the bidder will, if awarded the contract, promptly enter into agreement to perform the work, and furnish the required surety bond. The printed instructions to bidders and general stipulations included in the specifications for the work must be strictly complied with and said specifications shall be considered as a part of this advertisement. The work will involve the furnishing and placing of approximately 275,480 lineal feet of wood piling, 655 M. B. M. of lumber, and the placing of approximately 3400 tons of 2841 pieces of steel piling and 356 steel anchor rods, which steel will be furnished by the City of Jacksonville, Fla. For further information apply to Frank H. Owen, Commissioner of Utilities, Room 12, City Hall. Each bid should be addressed to the City Commission, and delivered through mail or otherwise, at the office of the Secretary, Room 13, City Hall. The Commission reserves the right to reject any or all bids. September 27, 1922.

Attest:
E. P. OWEN, JR.,
Secretary City Commission.
W. A. EVANS,
Chairman City Commission.

Bids close October 18, 1922.

Road Construction or ImprovementOFFICE OF
STATE ROAD DEPARTMENT

Tallahassee, Fla., September 30, 1922.

Sealed proposals will be received at this office up to 12 o'clock noon, Wednesday, October 18, 1922, for constructing or improving a section of Road No. 1, between Lake City and Welborn in Columbia and Suwannee Counties.

The length of road to be constructed or improved is approximately 11.6 miles and alternate proposals are desired on the following types of paving:

- 3-in. Penetration Macadam on 8-in. Rock Base.
- 3-in. Asphalt with Binder Course on 8-in. Rock Base.
- 6-in., 8-in., 6-in. Plain Concrete Surface.

A certified check, or a bidder's bond executed on the attached form, in the sum of \$12,000, and made payable to the Chairman of the State Road Department must accompany each proposal.

Plans and specifications are on file and may be examined at this office and at the office of the Division Engineer, Lake City, Fla., and may be secured on application to this office for the sum of Five (\$5.00) Dollars.

The right is reserved to reject any or all bids.

WM. F. COCKE, H. B. PHILIPS,
State Highway Engr. Chairman.

Bids close October 16, 1922.

Road Improvement.

Coalmont, Tenn.

Sealed bids will be received by the Grundy County Highway Commission at Coalmont, Tenn., until 2 P. M., October 16th, 1922, for the grading and drainage of five and one-half miles of highway from the foot of the mountain in Payne's cove to the Franklin County line.

The Commission will reserve the right to let the drainage separate from the grading and also will reserve the right to reject any or all bids.

A certified check for one thousand dollars, made payable to Grundy County Highway Commission, must accompany each bid (except those bidders bidding on drainage alone will be required to furnish certified check for five hundred dollars) as a guaranty of good faith.

Address

J. B. COCHRAN,
County Engineer.

Bids close October 11, 1922.

Concrete Roadways

DEPARTMENT OF PUBLIC

IMPROVEMENTS

SUB-DEPARTMENT OF HIGHWAYS

ENGINEER

Baltimore, Md., September 27, 1922.

Sealed bids or proposals, in duplicate, addressed to the Board of Awards and marked "Bids for Constructing Concrete Roadways, Contract No. 189," will be received at the office of the City Register, City Hall, Baltimore, Md., until 11 A. M., Wednesday, October 11, 1922, at which place and time they will be publicly opened by the Board of Awards and read.

Plans and specifications may be obtained at the office of the Highways Engineer Department, City Hall, Baltimore, Md. A charge of five (\$5.00) dollars will be made for each set of plans and specifications. This amount will be refunded upon the return of these plans and specifications in good condition; but this charge will not be refunded unless the plans and the specifications are returned to the Highways Engineer on or before the date of opening bids.

The principal approximate quantities involved are the following:

- 13,000 cu. yds. of excavation.
- 140 cu. yds. of concrete masonry.
- 8,750 sq. yds. of concrete roadway.

A certified check of the bidder on a clearing house bank, made payable to the Mayor and City Council of Baltimore, for the sum of One Thousand (\$1000.00) Dollars will be required with each bid.

The Board of Awards reserves the right to reject any and all bids.

APPROVED:

(Signed) WM. F. BROENING,
President Board of Awards.

APPROVED:

(Signed) FRANK DRISCOLL,
Assistant City Solicitor.

APPROVED:

(Signed) A. E. CHRISTILF,
Highways Engineer.

APPROVED:

(Signed) H. G. PERRING,
Chief Engineer.

Bids close October 10, 1922.

Concrete Structures: Filter Equipment and Brick Filter House

Greensboro, N. C.

Proposals will be received by the City Council of Greensboro, N. C., until 12 o'clock M., Tuesday, October 10, 1922, for building a filtration plant and appurtenances.

The work includes the construction and equipment of a six million gallon filter plant, the construction of a coagulation basin with dividing wall, capacity 1,148,000 gallons, and the construction of a mixing chamber. The principal quantities involved are:

- 8,000 cubic yards of earth excavation.
- 1,900 cubic yards of concrete.
- 225,000 pounds of reinforcing steel.
- The equipment of six 1,000,000 gallon filter units.
- 80,000 brick, laid in filter house walls.
- Steel wash water tank of 70,000 gallons capacity.
- 1,000 G. P. M. motor-operated pump.

Piping, valves, and miscellaneous items. Plans will be on file and may be seen at the office of the City Manager, Greensboro, N. C., or at the office of the Ludlow Engineers, Winston-Salem, N. C., after September 15. After that date copies of the specifications, bid blank, and contract may be obtained from the Engineers or City Manager. For the convenience of prospective bidders, the Engineers will furnish copies of the plans upon application accompanied by a check for ten (\$10.00) dollars to cover the cost, or separate prints at one (\$1.00) dollar each.

Each bid must be accompanied by a certified check in the sum of \$5000, or 5% of the amount of partial bids.

Proposals will be opened publicly with the usual rights reserved.

P. C. PAINTER,
City Manager.

J. L. LUDLOW,
Consulting Engineer.

Bids close October 16, 1922.

Road Improvements

Dade City, Fla.

Highlands Special Road and Bridge District, Pasco County, Florida, will receive bids on approximately 100 miles road improvements until 10 o'clock A. M., Monday, October 16th, 1922.

A. J. BURNSIDE, Clerk,
Board County Commissioners.
J. W. TURNER, Engineer,
Lakeland, Fla.

Bids close October 16, 1922.

Road Construction or Improvement

Titusville, Fla., September 30, 1922.

Sealed proposals will be received by the Board of County Commissioners of Brevard County at Titusville, Fla., until 12 o'clock noon, Monday, October 16, 1922, for constructing or improving two sections of State Road No. 4, one section being between Sharpes and Titusville, approximately 7.25 miles and the other section between Bonaventure and Eau Gallie, approximately 7.01 miles.

Alternate proposals are desired on the following classes of paving 18 ft. wide:

- 2½-in. Penetration Macadam on 8-in. Rock Base.
- 3-in. Asphalt with Binder Course on 8-in. Rock Base.
- 6-in., 8-in., 6-in. Plain Concrete Surface.

All work to be done in accordance with the plans and specifications of the State Road Department.

A certified check or bidder's bond in the sum of Ten Thousand (\$10,000) Dollars, and made payable to the Chairman of the Board of County Commissioners must accompany each proposal.

Plans and specifications are on file and may be examined at this office and at the office of the Division Engineer, Fort Pierce, Fla., or may be secured on application to the State Road Department, Tallahassee, Fla., for the sum of Five (\$5.00) Dollars each.

The right is reserved to reject any or all bids.

E. C. JOHNSON, Chairman,
Board of County Commissioners.
N. T. FROSCHER, Clerk,
WM. F. COCKE,
State Highway Engineer.

Bids close October 31, 1922.

Proposal for Building, Delivering and erecting 15 and 30 M. G. D. Steam Pumps in the Chattahoochee River Pumping Station for the City of Atlanta, Ga.

Sealed proposals for building, delivering and erecting 15 and 30 M. G. D. Steam Turbine Driven Centrifugal Pumps and 15 M. G. D. Cross Compound Pumping Engines for the City of Atlanta, Ga., will be received by the Purchasing Agent of the City of Atlanta at the City Hall until 2:30 P. M., on the 31st day of October, 1922.

The work will consist of building, delivering and erecting complete with all accessories, one or more Steam Pumps on foundations erected by the City of Atlanta in the Chattahoochee River Pumping Station. The sizes and type of pumps will be determined after receiving bids.

Each proposal must be accompanied by a certified check payable to the City of Atlanta, in an amount equal to five (5%) per cent of the bid, as a guarantee that the contract will be entered into if awarded. A bond of one hundred (100%) per cent of the contract price will be required.

Plans and specifications are on file at the office of the General Manager of the Atlanta Water Works, City Hall, Atlanta, Ga., P. H. Norcross, Consulting Engineer, 1404 Candler Building, Atlanta, Ga., and with the Engineering News Record, New York City. Bidders may obtain copies of the specifications from the Purchasing Agent by enclosing check for twenty-five (\$25.00) dollars payable to the City of Atlanta, and to be held until return of specifications in good condition. The City reserves the right to reject any and all bids.

No proposal will be entertained unless made on the form, and sealed in the envelope furnished by the City of Atlanta.
PURCHASING AGENT,
City of Atlanta, Ga.

Bids close October 11, 1922.

Construction of Drains and Appurtenances

DEPARTMENT OF PUBLIC IMPROVEMENTS
SUB-DEPARTMENT OF HIGHWAYS
ENGINEER

Baltimore, Md., September 27, 1922.
Sealed bids or proposals in duplicate for the construction of drains and appurtenances in Gwynns Falls Park north of Franklin Road, comprising approximately:

1581 cu. yds. earth excavation.
650 cu. yds. rock excavation.
357 cu. yds. concrete masonry.
29 cu. yds. brick masonry.
23 cu. yds. stone masonry.
700 lin. ft. 42-in. concrete section drain.
95 tons cast iron pipe.
5 manholes.

and other work incidental to the above will be received until 11:00 o'clock, A. M., Wednesday, October 11, 1922.

Proposals must be addressed to the Board of Awards and sent to the office of the City Register, City Hall, Baltimore, Md., accompanied by a certified check of the

bidder on a clearing house bank, drawn to the order of the Mayor and City Council of Baltimore in the amount of seven hundred and fifty (\$750) dollars.

Right is reserved to reject any or all bids. Bond in the amount of the contract price will be required for the proper performance of the contract.

Plans and specifications may be obtained at the office of the Highways Engineer, Room 8, City Hall, upon payment of five (\$5.00) dollars, which will be refunded if a bid is submitted or if the plans and specifications are returned in good order to the Highways Engineer on or before eleven (11:00 A. M.) on the date set for opening bids.

APPROVED:

(Signed) WM. F. BROENING,
President Board of Awards.

APPROVED:

(Signed) FRANK DRISCOLL,
Assistant City Solicitor.

APPROVED:

(Signed) A. E. CHRISTHILF,
Highways Engineer.

APPROVED:

(Signed) H. G. PERRING,
Chief Engineer.

Bids close October 12, 1922.

Water Supply

Palatka, Fla.

The Water Committee of the City Council of the City of Palatka, Fla., will receive bids at the office of the City Clerk at Twelve o'clock noon on October 12th, 1922, for the drilling of one ten (10) inch well and all necessary labor, equipment, casing and specials necessary to drill same excepting that the City will furnish steam for performing the work.

The well to be at least three hundred (300) feet deep and to have a continuous flow of not less than twelve hundred (1200) gallons per minute at an elevation of twelve (12) feet above mean low tide in St. Johns River at Palatka.

A certified check, payable to the Treasurer of the City of Palatka, Fla., in an amount equal to five per cent of the total bid must accompany each bid.

The Water Committee reserves the right to reject any or all bids.

For further information address City Engineer, Palatka, Fla.

CLASSIFIED OPPORTUNITIES

MINERAL AND TIMBER LANDS WATER POWERS, MISCELLANEOUS PROPERTIES,

COAL LANDS AND MINES FOR SALE

Going coal mine. Coal, oil and gas lands. C. A. Croft, Box No. 3, Madison W. Va.

5000 acres bituminous coal, four miles from railroad southwest Texas. 3 feet surface cropping, drilling in district shows 25 feet of coal; a bargain. G. Denton, owner, Kampmann Building, San Antonio, Tex.

LEASE OR SALE

600 acres of coal land in the heart of the Wise County Coal Field, near Glamorgan, Va. Would consider sale or lease, lease preferred, carries all the seams in the field, near Interstate Railroad. Price and description on request. W. H. Roberts, Wise, Va.

FOR SALE—Going coal mines—coal, oil and gas lands—timber tracts. Reports made on same anywhere. E. H. Morris, Box 518, Charleston, W. Va.

TIMBER

FOR SALE—TIMBER ON 4000 ACRES of land on railroad, 20 miles north of Vicksburg, Miss., consisting of about two-thirds White and Red Oak. Balance Gum, Cypress, Pecan, Ash, etc. Will cruise about 5000 feet to the acre. Address Harry Marshall, South Brownsville, Pa.

TIMBER LAND

100 million feet virgin long leaf yellow pine on 34,560 acres, two miles railroad, three miles water. \$7.00 per acre in fee simple. J. B. Brewton, Vidalia, Ga.

TRADE OR SALE

Well equipped black land dairy, hay, stock and general farms in East Mississippi. Also timber tracts in several southern states from one to fifty sections. Attractive terms. L. Roberts, Crawford, Miss.

Virgin Yellow Pine, Cypress and Hardwood timber, on transportation and at fair prices; also cut-over lands. For prices and full details address Arthur T. Williams, P. O. Box 42, Jacksonville, Fla. 30 years handling timber lands in Florida. Reference any bank in Jacksonville.

RATES AND CONDITIONS

Rate 30 cents per line per insertion. Minimum space accepted, four lines. In estimating the cost, allow seven words of ordinary length to a line. When the advertisement contains a number of long words, proper allowance should be made. Terms: Invariably cash with order; check, postoffice or express order or stamps accepted. No display type used. Questionable or undesirable advertisements will not be accepted. The assistance of our readers in excluding undesirable advertisements is requested. We reserve the right to refuse any advertisement. No patent medicine, oil or mining stock advertisements accepted. Rate for special contracts covering space used as desired within one year as follows: 100 lines, 25c. per line; 300 lines, 25c. per line; 500 lines or more, 25c. per line.

TIMBER LAND

6800 acres near Charleston, S. C. 35,000,000 feet extra fine pine timber. Best grade. 10,000,000 feet hardwood, principally cypress. Will cut 1,000,000 cross-ties high-grade. Near market. Logging conditions excellent. Good quality land and healthy location. Splendid buy for mill-man. Extra bargain as investment. J. R. Barbour, Benson, N. C.

FARM FRUIT, AND TRUCK LAND

FLORIDA

FLORIDA—Come to Florida, "where its summertime in the wintertime, and pleasant all the year round;" no coal bills; no wintry ice or snow—just sunshine, and health and opportunity. Send for booklet, "Largest Orange Tree in the World," and list of homes, groves and farms. Tampa-West Coast Realty Co. (Inc.) opposite Post Office Since before the "F" Tampa, Fla.

Rich, deep muck Everglade land, 10 acres to 25,000 acres, near Pennsylvania Sugar Company's \$1,250,000 sugar mill, north and west of Miami, Fla.—Price \$15.00 per acre up. Stewart, Hollisoper & McCune, Realtors, 136 N. E. 1st St., Miami, Fla.

Five to six thousand acres high grade citrus and truck lands. In flowing well district, on Dixie Highway and A. C. L. Railroad between Orlando and Tampa. Splendid terms and a wonderful price to a quick buyer. Best colonization proposition in Florida. Wilmott & Co. Since 1883. Orlando, Fla.

FLORIDA

Own an orange grove in the beautiful Indian River section. 40 acres good land unimproved; convenient to transportation, packing houses, etc. \$1250.00 for whole tract. Cash. S. Hendry, City Point, Fla.

FLORIDA—Sugar mills operating in Everglades of Florida this fall. Muck lands in the "Sugar Bowl" of the U. S., best for cane and vegetables; tracts 640 acres up can still be bought for \$25 acre. P. F. Quinn, Realtor, West Palm Beach, Fla.

NORTH CAROLINA

FOR SALE—Attractive location of 476 acres in Moore County, N. C. Eleven miles from Pinehurst, in peach, dewberry and tobacco section. If interested write W. C. Jones, Jackson Springs, N. C.

SOUTH CAROLINA

Truck farms that pay dividends annually can be bought at reasonable prices here. Vegetables are shipped eight months in the year. Three and four crops are grown on the same land annually. Excellent climate and health. Plenty of labor; strikes unknown. Well organized association that sells all farm products. For particulars write, Lake Realty Company, Beaufort, S. C.

TEXAS

4200 acres heavy black land almost adjoining Corpus Christi, fronts three miles on road which will be hard surfaced, finest sub-division property in Texas, will sell as a whole for \$65 per acre or sub-divide in small tracts. For full particulars write Grubbs Realty Co., Corpus Christi, Tex.

BUSINESS OPPORTUNITIES

If interested in the
BEST SECTION OF THE SOUTH
If you want a Cotton Mill,
or Southern Mill Stocks
or Investment in Central Real Estate
or Large Suburban Development property
or a Manufacturing Site
Address
F. C. ABBOTT & COMPANY
Trust Building, Charlotte, N. C.

Retiring manufacturing chemist, 20 years experience, has for sale formulas for fine Toilet Preparations, Perfumes, Flavouring Extracts and Medicinal Preparations second to none. Several specialties not made by any other houses. Will sell part or all formulas. Would establish laboratories. Samples submitted. Address Chemist, Room 828 James Building, Chattanooga, Tenn.

BUSINESS OPPORTUNITIES

FINANCING: INDUSTRIAL AND MUNICIPAL.—My connections in the negotiations of the sale of millions of dollars of municipal bonds yearly, afford opportunity for a few select industrial developments, water power, cotton mills, big timber tracts, real mining properties, etc. Can either sell them or furnish capital for organization and development, all quietly and effectively. Only a proposition of considerable size will be considered, and it must stand the test of bona fide business. If I undertake it I will see it through, but I will not undertake it unless you can show me you also mean business and want to try a more business-like plan than the usual public offering or brokerage. Bruce Craven, Attorney, Trinity, N. C.

COME SOUTH.—Buy land. Build home. Go into business. Make money. Learn about the "Garden Spot of Dixie." Send for "THE LENORIAN," LaGrange, N. C.

RICHMOND, VA.—GATEWAY TO SOUTH For Rent—For Sale—For Rent—For Sale From 10,000 to 200,000 sq. ft.: for factory, distribution and warehouse businesses. Gordon E. Strauss Co., 918½ E. Main St., Richmond, Va.

Wanted.—In every Southern City, Local Dealer, Manufacturer's Agent or responsible salesman specializing in building materials and having favorable acquaintance with architects, contractors and builders to take on a high-class building material of established merit, used in wide range of structures, backed by strong concern having large, well equipped factory. Commission basis. Factory will supply samples, literature and all needed assistance in getting started. Hard work will net satisfactory return. Give complete information concerning selling experience. Address 6071, care of Manufacturers Record, Baltimore, Md.

RELIABLE LIST OF FARM OWNERS of Sabine County, Arkansas; 1500 names and addresses in alphabetical form, \$5.00; have used this list myself with satisfactory results. Robert M. Dorris, Benton, Ark.

I SPECIALIZE in industrial, warehouse and business sites at and adjacent to Washington, D. C.

M. B. HARLOW, Alexandria, Va. Colorado Building, Washington, D. C.

For sale or will trade for good water power, timber tract, or same value, my equity in first-class apartment house building in Chicago valued at over \$30,000. Address No. 6667, care Manufacturers Record, Baltimore, Md.

Interest open in Marine Transportation and Commission Company. Business enough from South to earn \$300,000 Net Annually. 25% on capital invested. Alfred S. Perry, Perry Building, Fairfield, Conn.

FINANCIAL

If your town or county or district is contemplating a sale of bonds for public improvements, write to me for information as to proper way to manage the transaction. Also if you have any issues of such bonds now for sale, I can furnish you information of value on request without obligation on your part. Bruce Craven, Attorney, Trinity, N. C.

Prosperity of banking corporations built upon the ruin of the people. Read T. Cushing Daniel's book, "The Betrayal of the People" by Congress in passing the fraudulent gold basis Federal Reserve Act, and defeat any Representative who now tries to defend this financial scheme to rob the people. Popular edition. 25 cents. The Monetary Educational Bureau 1416 F St., Washington, D. C.

FACTORY SITES

FREE FACTORY SITES, FINANCIAL ASSISTANCE AND OTHER ATTRACTIVE INDUCEMENTS

J. D. Stone & Company, Inc.
No. 4 Arcade Building,
Norfolk, Va.

BALTIMORE

FACTORY
SITES

William Martien & Company.

1413 Lexington Bldg.,

Baltimore, Md.

FOR SALE OR LEASE

Four and one-half acres in Bridgeport, Conn. Desirable location, 450 feet on the railroad, spur track now on the property. 640 feet on the street; 650 feet on river and slip. Depth of river 18 feet at low tide. Site suitable for manufacturing, distributing center for lumber, cement or other uses requiring both water and rail facilities. Map and other particulars on request.

THE BRIDGEPORT LAND & TITLE CO.
AGENT

875 Main Street, Bridgeport, Conn.

NEW ORLEANS.

Commercial and Factory Sites and Buildings
Gurley & Parkinson,
338 Carondelet St.

INDUSTRIAL PLANTS

FOR SALE

New modern manufacturing plant, suitable for most any line. 1 Bldg. 50x100 ft. Monitor roof, with light airy cemented basement, Steam heat, Sprinkler system, Cheap electric, Power and Labor, Large oil storage tank. Railroad Siding, other one story bldgs., 40 miles from Cin. on main line B. & O., 4½ acres ground, at two-thirds of original cost. Terms to suit. Address No. 6069 care Manufacturers Record.

FOR SALE.—A 200-barrel capacity modern Flour Mill in a thriving North Carolina town with the best R. R. facilities in the state. Owners have other business requiring all of their attention and will sell at a bargain. Address No. 6074, care Manufacturers Record, Baltimore, Md.

FOR SALE OR LEASE.—Manufacturing site: 25 acres, Elkridge, Md.; on Patapsco River; about 180 H. P. developed; good buildings; partly equipped; main line B. & O. Address R. W. Kime, Salem, Va.

PATENT ATTORNEYS

INVENTORS.—Send sketch or model of your invention, for opinion concerning patentable nature, and exact cost of applying for patent. Book, "How to Obtain a Patent" sent free. Gives information on patent procedure and tells what every inventor should know. Established 25 years. Chandless & Chandless, 412 7th St. N.W. Washington, D. C.

PATENTS, TRADE-MARKS AND COPYRIGHTS.—Write for our Free Illustrated Guide Book and EVIDENCE OF CONCEPTION PLANK. Send model or sketch and description of your invention for our opinion of its patentable nature free. Highest references. Prompt service. Reasonable terms. Victor J. Evans & Co., 712 9th St., Washington, D. C.

PATENTS.—Booklet free. Highest references. Best results. Promptness assured. Watson E. Coleman, Patent Lawyer, 624 F St., Washington, D. C.

MEN WANTED

Representatives, dealers and jobbers to handle new **HELICAL FLUTE** Expansion Reamer. The greatest Expansion Reamer ever placed on the market. Millersburg Reamer and Tool Co., Inc., Millersburg, Pa.

Wanted.
Several Building Superintendents,
Apply
King Lumber Co., Charlottesville, Va.

WANTED.—By a well established firm having a full line of high temperature furnace cements, with some trade in Baltimore and the South, a representative to sell to industrial plants on a commission basis. Live wire can make good money. Advise territory desired. Address No. 6075 care of Manufacturers Record, Balto., Md.

WANTED SALESMAN.—Experienced retail lumber and building material salesman to work local trade, city 50,000 inhabitants. Apply in own handwriting stating age, experience, references and salary expected. Address No. 6073, care Manufacturers Record, Baltimore, Md.

Well established foundry and machine shop in large industrial city in North Carolina is in need of a progressive middle-aged man for general manager. He must be energetic, and able to direct men towards economical production and must have experience in foundry and machine shop practice. Splendid climate and educational facilities. Good position for right man. References exchanged. Address No. 6070 care Manufacturers Record, Balto., Md.

A LEADING ORGANIZATION desiring to fill an important position, for obvious ethical and other reasons, cannot invite directly the candidacy of any particular man. Similarly, no well-connected man will exploit personally his own qualifications no matter how receptive he may be to overtures. The undersigned has been retained by a national clientele for many years, as a medium for negotiating preliminaries in such cases. Your permission to send booklet discussing this problem and describing the service, will in no degree obligate or compromise you. Strictly confidential. R. W. Birby, Inc., 303 Lockwood Bldg., Buffalo, N. Y.

Stock Salesman wanted to handle first mortgage industrial bonds give references and commission expected in first letter. R. W. Herfurth, Camden, S. C.

"EXECUTIVES and men of proven ability seeking positions find our service extremely satisfactory. Our Mr. H. H. Harrison can confidentially negotiate for you suitable connections as he has done for thousands of others since 1909. Inquiries invited. The National Business Bureau, Inc., Association Building, Chicago."

MACHINERY AND SUPPLIES

Locomotive For Sale—Ten wheel, 55 ton, Rhode Island make, equipped for main line service, \$4000.00.
Box 187, Palatka, Fla.

Valves and pipe fittings, all sizes and kinds. Let us figure on your requirements. Pratt Thompson, 220 E. Lexington Street, Baltimore, Md.

We have a limited number of 15 and 20 H. P. New Cushman two cylinder oil burning engines to offer at bargain prices. For prices, etc., write Cole Bros., Chilhowie, Va.

MACHINERY AND SUPPLIES WANTED

WANTED.—Up to 80 tons ¾" round bars for Phila. delivery. Can be slightly rusted. Lengths 20 feet or more. State quality, condition, best price and shipping point first letter. Address No. 6072, care Manufacturers Record, Baltimore, Md.

Wanted to buy one 26x48 or 28x48 heavy duty late type Corliss Engine. In quoting price, state location and condition, giving factory number of same. Camp Mfg. Co., Franklin, Va.

WANTED.—500 ft. Span Drag Line Cable Way Excavator in first-class condition, with 1½-yd. bucket, mast, cables, gear cables, hoisting engine, that will excavate and convey 500 cu. yds. of sand and gravel from pit to hopper in 10 hrs. No. 6076 care Manufacturers Record, Baltimore, Md.



SPECIAL ADVERTISEMENTS OF GENERAL INTEREST

Industrial Location

I will furnish two-story Building 30x60, Railroad Siding and Electric Current alongside, for an interest in a reliable manufacturing proposition. Location near Trenton, N. J. Address

CHARLES T. EASTBURN

803 Broad St. Bank Building

Trenton, N. J.

FOR SALE

Foundry and machine shop buildings at Coxsackie, N. Y., 20 miles below Albany, on Hudson River; dock and slip one block from N. Y. boat landing; foundry, 160x50; machine shop, 115x50; monitor on foundry all brick, 25x120, slate roof, double windows; room to enlarge three times present capacity; almost new; other buildings almost new; now occupied by owner; terms reasonable.

J. G. NEWBURY, Coxsackie, New York

\$25,000.00 Additional Capital Wanted

Old established machinery and mill supply house requires \$25,000.00 additional capital to enlarge business and add additional stock to meet requirements. Will be glad to furnish facts and figures.

Address: P. O. Box 134, Jacksonville, Fla.

First-class Articles Wanted

TO USE IN

Mail Order Business

These articles will be given very best attention. Will receive proper amount of advertising and push. Either novelties or specialties, provided price to consumer does not exceed \$7.00. If you have the articles, let us hear from you.

BEST SERVICE COMPANY

212 Walker Building - - - Minneapolis, Minn.

A Real Sales Manual

Put the sales-facts of your business into the hands of your representatives in a compact, yet comprehensive and thoroughly readable form. It pays.

Arthur M. Kennedy

Business Research

Sales Manuals

218 So. 16th Street, Philadelphia, Pa.

THE TEXAS AND PACIFIC RAILWAY SERVES

Dallas Fort Worth El Paso

Abilene Sweetwater

Cisco Texarkana

IN
TEXAS

New Orleans Shreveport

Alexandria

IN
LOUISIANA

*Splendid opportunities for manufacture
and distribution.*

Address

Frank J. Burke

Land & Industrial Commissioner
Dallas, Texas

Thos. E. Grady & Co., Inc.

INDUSTRIAL TRAFFIC MANAGERS
AND COUNSELLORS

Representing Capital in Excess of \$200,000,000.00

Our clientele composed of more than 3000 shippers and receivers of freight in the South are receiving the following service:

- | | |
|---|---|
| a. Quoting of freight rates both rail and ocean. | merce Commission or any state railroad commission. |
| b. Advice as to proper classification. | i. Furnishing on application any information possessed by us regarding any traffic regulations or rules—and without application to furnish information coming to our attention of importance to the subscriber, relating to any traffic matter. |
| c. Advice as to packing requirements. | j. Handling of reconsignments and embargoes. |
| d. Auditing of freight bills and prepaid bills of lading. | k. Any other traffic matters not specifically covered in the foregoing. |
| e. Collection of overcharge claims. | |
| f. Collection of loss and damage claims. | |
| g. Furnishing of legal opinions on matters pertaining to traffic law. | |
| h. Handling of complaints before Interstate Com- | |

We handle all Traffic and Transportation matters on contract basis. Correspondence Solicited.

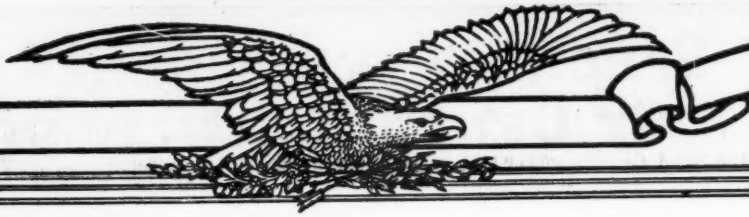
We can quote you rates from Anywhere to Everywhere

Thos. E. Grady & Co., Inc.

ATLANTA, GA.
Citizens & Southern
Bank Building

SAVANNAH, GA.
Savannah Bank & Trust
Building

COLUMBIA, S. C.
Liberty National Bank
Building



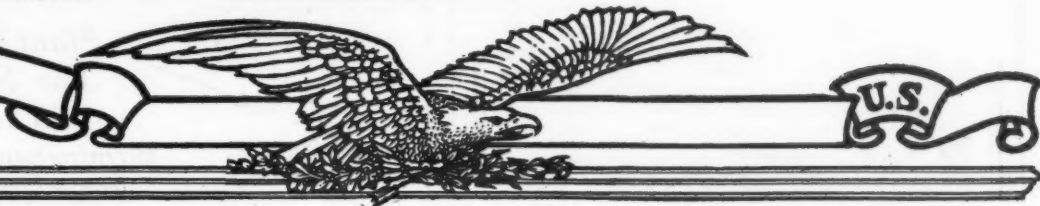
WAR DEPARTMENT

OCTOBER

- Oct. 10—**Q. M. SUPPLIES**—Camp Grant, Ill., Auction. For catalog write Q.M.S.O., 1819 W. Pershing Road, Chicago, Ill.
- Oct. 10—**MEDICAL SUPPLIES**—New York City, Auction. For catalog write Surplus Property Sect., Office, Surgeon General, Washington, D. C.
- Oct. 11—**AIR SERVICE SUPPLIES**—Carlstrom Field, Fla., Auction. For catalog, write Commanding Officer, Carlstrom Field, Fla.
- Oct. 17—**Q. M. SUPPLIES**—Camp Dix, N. J., Auction. For catalog write Q.M.S.O., 1st Ave. & 59th St., Brooklyn, N.Y.
- Oct. 19—**POWER HOUSE EQUIPMENT**—Rock Island, Ill., Sealed Bids. For catalog, write C.O. Rock Island Arsenal, Rock Island, Ill.
- Oct. 23—**SCRAP BRASS COPPER STEEL**—Toledo, O., Sealed Bids. For catalog write C.O. Toledo Ordnance Reserve Depot, Toledo, O.
- Oct. 24—**FLOATING EQUIPMENT**—Port Newark, N. J., Auction. For catalog write Q.M.S.O., 1st Ave. & 59th St., Brooklyn, N. Y.
- Oct. 24—**AIR SERVICE EQUIPMENT**—Montgomery, Ala., Auction. For catalog write C.O. Air Reserve Depot Montgomery, Ala.
- Oct. 27—**MEDICAL SUPPLIES**—Washington, D. C., Auction. For catalog write Surplus Property Sect., Office, Surgeon General, Washington, D. C.
- Oct. 30—**AIR SERVICE EQUIPMENT**—Richmond, Va., Auction. For catalog write C.O. Air Reserve Depot, Richmond, Va.

SEND FOR CATALOG

WAR DEPTA



SELLING PROGRAM


NOVEMBER

- Nov. 10—**Q. M. SUPPLIES**—Schenectady, N. Y., Auction. For catalog write Q.M.S.O., 1st Ave. & 59th St., Brooklyn, N. Y.
- Nov. 14—**Q. M. SUPPLIES**—Camp Lewis, Wash., Auction. For catalog write Q.M.S.O., Ft. Mason, San Francisco, Calif.
- Nov. 14—**AIR SERVICE EQUIPMENT**—Long Island, N. Y., Auction. For catalog write C.O. Air Service Depot, Long Island, N. Y.
- Nov. 15—**Q. M. SUPPLIES**—Brooklyn, N. Y., Auction. For catalog write Q.M.S.O., 1st Ave. & 59th St., Brooklyn, N. Y.
- Nov. 16—**MEDICAL SUPPLIES**—Philadelphia, Pa., Auction. For catalog write Surplus Property Sect., Office Surgeon General Washington, D. C.
- Nov. 21—**Q. M. SUPPLIES**—Camp Knox, Ky., Auction. For catalog write Q.M.S.O., 1819 W. Pershing Road, Chicago, Ill.
- Nov. 23—**Q. M. SUPPLIES**—Chicago, Ill., Auction. For catalog write Q.M.S.O., 1819 W. Pershing Road, Chicago, Ill.
- Nov. 28—**Q. M. SUPPLIES**—New Orleans, La., Auction. For catalog write C. O., Q. M. Surplus Property Depot, Atlanta, Ga.

DECEMBER

- Dec. 5—**Q. M. SUPPLIES**—San Antonio, Tex., Auction. For catalog write Q.M.S.O., Ft. Sam Houston, San Antonio, Texas.
- Dec. 12—**Q. M. SUPPLIES**—Columbus, O., Auction. For catalog write Q.M.S.O., 1819 W. Pershing Road, Chicago, Ill.

SEND FOR CATALOG



Men Have Slaved Years To Make *What One of these ads will save you*

YOUR favorite paper or business publication will tell you more about how to pay dividends than all the stock selling literature in the world.

Just turn to the War Department announcements of Surplus Property Sales.

You will soon find something you need. And when you do, be sure to send at once for the catalog—for it will point out an opportunity such as has never occurred in the past and is unlikely ever to occur in the future.

These sales cover every conceivable product. Manufacturers can secure machinery, supplies and raw materials. Retailers can secure merchandise of every description. And everything you buy is ready for immediate delivery.

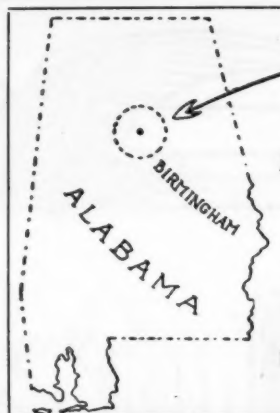
Watch the Sales! It's an easy matter to follow the War Department announcements—but not so easy to duplicate the savings they offer. If you want further information, write to Maj. J. L. Frink, Chief, Sales Promotion Section, Office, Director of Sales, Room 2515 Munitions Bldg., Washington, D. C.

DEPARTMENT



A SPLENDIDLY MILL CONSTRUCTED BRICK BUILDING
three stories high, 280 ft. long x 65 ft. wide. Situated in a live Southern Virginia town of 6,000 population and located on two railroads; Southern and Norfolk & Western. Sidings run parallel, building full length on both sides. Will sell at a great bargain. Terms, liberal.

Address A-270
care of Manufacturers Record, Balto., Md.



Plant Sites For Sale in the Birmingham District

**HYDRO-ELECTRIC POWER
EQUABLE CLIMATE**

Sizes to suit all needs on all railroads. Supplies of coal, coke, iron and steel within trucking distance.

Labor situation better than in other industrial centers. Hydro-electric power available. Equable climate. Address

BIRMINGHAM REALTY CO.
Owners
BIRMINGHAM, ALA.

MACHINERY AND EQUIPMENT WANTED

WANTED

25—1½ yard, 2-ft. gauge, two way dump Western or K. & J. cars, Southern location for immediate delivery.

Address A-271
care **MANUFACTURERS RECORD**
Baltimore, Md.

WANTED

to buy one Sullivan single head channelling machine.

APPALACHIAN MARBLE COMPANY
Knoxville, Tenn.

WANTED

PLANTS FOR WRECKING

Buyers of surplus hardware stocks, scrap iron and metals.

H. KLAFF & CO.
Central Ave., Gough & Stiles Sts.
BALTIMORE, MD.

WANTED

1—Small well drill for drilling blast holes.
1—Air-operated Jackhammer steel sharpener

Address
HARRY M. WAUGH
Bluefield, W. Va.

WANTED

2 belt driven or direct connected air compressors of approximately 500 cu. ft. each, 100 lbs. steam pressure or better, 220 or 440 volt, 2 phase; second-hand but in first-class condition.

HENRY A. HITNER'S SON CO.
4501 Richmond St., Philadelphia, Pa.

RESALE DEPARTMENT

MACHINERY

EQUIPMENT

SUPPLIES

375 K. V. A.

Brand New—3 ph., 60 cy., 240 v. Ridgway, A.C. Generator, direct-connected to 21 x 24 Ridgway, 4 valve, side crank engine, complete with belted exciter.

COLEMAN-SHOEMAKER, INC.
20th & Clearfield Streets - Philadelphia

**Red and Buff Dry Pressed Brick,
Common Building Brick**

GEORGIA-CAROLINA BRICK CO.
HOWARD H. STAFFORD, Pres.
AUGUSTA, GA.

GAS ENGINE FOR SALE

On account failure natural gas, we have a 300 H.P. Allis-Chalmers Horizontal Tandem Gas Engine for sale.

THE CITIZENS ICE COMPANY
TOLEDO, OHIO

NEW MOTORS—Immediate Shipment

Quan.	H.P.	V.	R.P.M.	Type	Make
3	25	220	850	K	R. & M.
1	40	220	1200	B	Fairbanks-Morse.
1	40	220	1200	H	Fairbanks-Morse.
1	40	440	900	H	Fairbanks-Morse.
1	50	440	900	H	Fairbanks-Morse.
1	50	220	1200	H	Fairbanks-Morse.
1	50	440	850	AN	Allis-Chalmers.
1	75	440	900	B	Fairbanks-Morse.
1	75	220	865	AN	Allis-Chalmers.
1	150	2200	600	Q	Crocker-Wheeler.

GEO. F. MOTTER'S SONS
Steam and Electrical Engineers
YORK, PA.

NEW BOILERS BELOW MANUFACTURERS' COSTS

- 125 H. P. Horizontal Return Tubular Boilers, 72"x16"—A. S. M. E. Specifications.
- 80 H. P. Return Tubular Boilers A. S. M. E. Specifications.
- 80 H. P. Locomotive Boilers Mounted on trucks—A. S. M. E. Specifications.
- 25 H. P. Vertical Boilers.

Manufactured for us by Sotter Bros., Inc.
POTTSTOWN STEEL COMPANY
DOUGLASSVILLE, PA.

WE OFFER FOR QUICK DISPOSAL

— AN —

ACTIVE OIL ENGINE MANUFACTURING PLANT

**Manufacturing the World Famous
Mietz & Weiss Semi-Diesel Type Oil Engine**

THIS OFFER INCLUDES:

ALL patent rights, patterns, jigs, fixtures, drawings, customers' names, records, orders on hand, service parts, finished stock, machinery and tools used in connection with the manufacturing.

SOME FACTS ABOUT THE BUSINESS:

In existence 28 years; built and sold approximately 9000 engines ranging from 4 to 250 H.P.; approximately 375,000 H.P. total; extensively used by the United States and Foreign Governments; adapted to any industrial or municipal purpose for light or power, marine or stationary installations.

Received GOLD MEDALS of EXCELLENCE at fifteen World Exhibits

Large Annual Service Parts Business

Large amount of present orders and inquiries on hand

This is a LIFE TIME opportunity to acquire a going business with a successful past and glowing future at a sacrifice price.

Telephone or telegraph immediately for further particulars.

Principals only

INDUSTRIAL PLANTS CORPORATION

25 CHURCH STREET

NEW YORK

RECTOR 0348

**RETURN TUBULAR
LOCOMOTIVE****BOILERS****WATER TUBE
SCOTCH MARINE**

A LARGE STOCK OF HIGH-GRADE BOILERS OF PRACTICALLY ALL SIZES, TYPES AND MAKES, TAKEN OVER FROM DU PONT CHEMICAL COMPANY'S AND OTHER PLANTS WITH PRODUCTION RECORDS—RECONDITIONED, OFFERED SUBJECT TO ANY INSPECTION, AVAILABLE NOW!

"SAVE TIME AND MONEY ON YOUR POWER INSTALLATION—LET DAVIS FURNISH THE BOILERS"

LONG DISTANCE
TELEPHONE
CENTRAL 1494

J. F. DAVIS

122-1123-1124
HARRIS TRUST BUILDING
CHICAGO, ILL.

**MACHINERY—FOR SALE
ELECTRICAL**

DYNAMOS, MOTORS AND
GENERATING UNITS.

POWER PLANT

BOILERS, ENGINES,
PUMPS AND AIR COM-
PRESSORS.

METAL WORKING

MACHINE TOOLS
PRESSES, LATHES,
PLANERS, MILLING MA-
CHINERY, Etc.

LARGE STOCK OF NEW AND USED
EQUIPMENT ON HAND AT ALL TIMES

THE O'BRIEN MACHINERY Co.
113 N. Third St., Philadelphia, Pa.

Long-Distance Bell Telephone: Market 0727
Cable Address: O'Brien, Philadelphia

**400 K. W. PLANT
A REAL BARGAIN FOR QUICK SALE**

2—Used 300 H.P. type T.A. DeLaval Turbines each mounted on common base with and direct connected to 2—100 K.W. each, 80% P.F. Bullock, 3 phase, 60 cycle, 240 volt, 900 R.P.M. Generators making 400 K.W. capacity, either 240 or 480 volts. Units complete with exciters, switchboard instruments, barometric condenser, connecting piping, circulating pumps, vacuum pumps, and accessories. Plant can also be operated non-condensing if desired. Full particulars on request.

— ALSO —

BOILERS ENGINES MOTORS GENERATORS

THE RANDLE MACHINERY CO.

Established 36 years

1734 POWERS ST. CINCINNATI, OHIO

**WATER TUBE
BOILERS**

Two (2) 338 HP Heine Water Tube Boilers, pressure allowed last inspection 200 lbs., single drum type, hand fired, complete with Bayer Soot Blowers, full front, all castings, and steam trimmings. Immediate Shipment. An unusual opportunity to secure a pair of high grade boilers at an exceptionally low figure.

FRANK TOOMEY, Inc.

127-131 N. 3rd St.

Philadelphia

DYNAMOS MOTORS

2—100 K.W. Western Electric Generator, 125 Volt with Skinner Engines.

1—225 K.W. 220 Volt Crocker-Wheeler, 450 R.P.M. direct connected to a 300 H.P. General Electric 515 R.P.M. 2400 Volt, 2 phase Motor.

Write us what you want to buy and sell.

ANDREW I. MEHAN COMPANY

119 N. Third St.

Phila., Pa.

BLUE BOOK OF SOUTHERN PROGRESS

Many individuals and organizations have distributed copies of this book by the hundreds. It is crammed full of facts and figures of the South's resources and development that Business men could study with profit. Single copies 50c.

Manufacturers Record,

Baltimore, Md.

**TANKS
IMMEDIATE SHIPMENT**

20" dia x 4' 1 1/4" long	85 Gal.	120" dia x 14' 5" long	8500 Gal.
27" dia x 4' 1 1/4" long	120 Gal.	120" dia x 16' 11" long	10000 Gal.
42" dia x 4' 1 1/4" long	280 Gal.	120" dia x 20' 3" long	12000 Gal.
52" dia x 5' 1 1/4" long	550 Gal.	120" dia x 25' 3" long	15000 Gal.
58" dia x 6' 8 1/4" long	800 Gal.	120" dia x 31' 1" long	18000 Gal.
58" dia x 7' 8 1/4" long	1000 Gal.	120" dia x 33' 7" long	20000 Gal.
65" dia x 8' 11 1/4" long	1000 Gal.	120" dia x 39' 5" long	23500 Gal.
64" dia x 9' 1 1/4" long	1500 Gal.	96" dia x 16' 3" long	6000 Gal.
68" dia x 10' 8 1/4" long	3000 Gal.	96" dia x 24' 3" long	9000 Gal.
68" dia x 15' 11 1/4" long	3000 Gal.	96" dia x 27' 0" long	10000 Gal.
78" dia x 16' 3 1/4" long	4000 Gal.	96" dia x 32' 3" long	12000 Gal.
84" dia x 17' 7 1/4" long	5000 Gal.	96" dia x 40' 3" long	15000 Gal.
76" dia x 40' 0" long	9500 Gal.		
84" dia x 32' 8" long	9400 Gal.		

SHARPSVILLE BOILER WORKS CO.

SHARPSVILLE, PA.

**ELECTRICAL
MACHINERY
and EQUIPMENT**

Immediate shipments from stock

Motors and Generators
Desk and Ceiling Fans
Exhaust Fans and Blowers
Electrical Instruments
Circuit Breakers

Factories' Branch
L. B. GOTTSCHALL & CO. DALLAS, TEXAS

A Real Opportunity

NEW STRUCTURAL STEEL—SLIGHTLY RUSTED—NOT PITTED

200 tons 5" I 9' 0" long
90 tons 4" I 12' 0" long

Exceptionally low price before removal.
Located New Cumberland, Pa.

HENRY A. HITNER'S SONS CO.
4501 Richmond St. PHILADELPHIA, PA.

A. C. MOTORS

Immediate Delivery. Large Stock,
Three Phase and Single Phase, Sizes $\frac{1}{2}$ to 50 H. P.
Send us Your Inquiries Before You Buy

SEEGER MACHINE TOOL COMPANY
Machinery and Supplies
34 S. FORSYTH ST. ATLANTA, GA.

ELECTRIC MOTORS

Generators & Motor Generator Sets
Steam Engine and Turbine Sets
(We buy and sell good used equipment)

J. L. HEMPHILL & CO., INC.
1118-1120 Clinton Street Hoboken, N. J.

**FIFTEEN ANDERSON OIL EXPELLERS
FOR SALE AT A BARGAIN**

Latest type, used but a few weeks.

BURRUSS ENGINEERING CO.

Atlanta Trust Co. Bldg., Atlanta, Ga.

1-42" and 54" J. A. Fay Band Rip Saw. 1-54" Gilbert Band Resaw.
1-Glen Cove 8" 4-side Matcher. 1-Preble 10" 4-side Matcher.
1-J. B. Hoyt 14" 4-side Matcher. 1-24" 5-drum Berlin Sander.
1-30" 2-drum Fay. 1-26 x 12 Double Surfacers, endless bed type.
1-48" Circular Resaw—power feed. 1-30" Circular Resaw—power feed.

MOULDERS:

1-7" 3-side Houston. 1-7" 4-side Fay.
1-9" 4-side Williamsport. 1-7" 3-side Hamilton.
Boilers, Hoists, Pumps, Engines, Ironworking Machinery, Belting, Shaft-
ing, Pulleys, Hangers.

THE CLEVELAND BELTING & MACHINERY CO.
1524 University Road CLEVELAND, OHIO

**DRYERS
CRUSHERS — GRINDERS — PULVERIZERS**

For All Purposes
PLANTS DESIGNED AND EQUIPPED

W. P. HEINEKEN

Engineer and Manufacturer

95 Liberty Street New York

BOILERS

2-72" x 18" H.R.T. "Penna. Boiler Works".
1-60" x 18" H.R.T. "Ames Iron Works".
1-48" x 14" H.R.T.
2-50 H.P. Locomotive, "Erie City Iron Works".
Also a full line of new and second-hand Vertical Boilers.

L. F. SEYFERT'S SONS INC.
437 N. 3rd St. Philadelphia, Pa.

HAMMERS

1-Erie 900 lb. steam No. 1458.
1-Bradley 200 lb. cushion helve No. 2918.

TURBINES

3-75 K. W. 250-volt D. C. General Electric Generator, di-
rect connected to Curtis turbine, 150 lbs. working pres-
sure, complete with oiling system and switchboard.

PLANERS

1-Patch straight side 5'x16' bed.
1-Patch straight or circular 6'x18' bed, 7' to 75' radius.

CRUSHER

1-Sturtevant Roll Jaw, size 6" x 15".

LATHES

10-19x8' Le Blond, double back geared quick change, belt
driven.

HOISTING ENGINES

8-75 H. P. National 3 Drum A. C. Electric Hoists.
1-40 H. P. S. D. D. C. Lidgerwood, Builders' Hoist.
1-8½x10 S. S. S. D. Lidgerwood, with boiler.
2-7½x10 D. C. D. National, with boiler.
2-7½x10 D. C. D. Mundy, with boiler.

AIR COMPRESSORS

1-139-ft. Air, Chicago, Belt driven.
1-350-ft. Air, Bury, steam driven.
1-1000-ft. Air, Sullivan, steam driven.
1-175-ft. Air, Ingersoll, steam driven.
1-190-ft. Air, American, steam driven.

PUMPS

1-1000-gal. Knowles Single.
1-750-gal. Worthington Duplex.
1-800-gal. Advance Duplex.
1-400-gal. Worthington Duplex.
40-Seranton, size 6x5½x6, new.
1-Hydraulic, Duplex Warren 8"x1¼"x10".

DRYER

1-Louisville Steam Dryer, size 6' x 25'.

**MALLORY MACHINERY
CORPORATION**

BALTIMORE — MARYLAND

EQUIPMENT FOR SALE

3-150 H.P. H.R.T. Boilers, 100 lbs. pressure, each \$900.00
1-125 H.P. Side-crank Engine, Houston, Stanwood &
Gamble\$650.00
2-Hand-power Traveling Cranes, 24' and 29' span
5-ton capacity each.....\$700.00
1-44" gauge, direct connected "Dinkey" about 8-ton
Locomotive, just overhauled.....\$1,500.00
1-25 H.P. DCDD "Byers" Hoisting Engine with boiler
in good order.....\$1,200.00
or without boiler.....\$900.00
1-16 H.P. D.C.S.D. "Byers" hoisting engine with
boiler in good order.....\$650.00

SOUTH SIDE FOUNDRY & MACHINE WORKS

Charleston, W. Va.

**CASTLE & WILSON, 1601 Arrott Building,
PITTSBURGH, PA.**

GENERATORS

1-150 K.W. D.C. Crocker-Wheeler, 250 volt, 200 R.P.M. engine type.
1-200 K.W. Bullock, 220-250 volt, direct current, 450 R.P.M., 3-bearing.

MOTOR-GENERATOR SET

1-75 KW. 500 volts, D.C., Burke Generator to 115 H.P. 2200 volts, 3-
phase, 60 cycle, Burke motor.

ENGINES

12x16" Buckeye. 16x16" Phoenix. 16 x16" McEwen.
16½x30" Buckeye. 24 x12" Fulton Iron Works.
TANDEM COMPOUND BELTED ENGINES AS FOLLOWS
13 and 22½ x 30" Buckeye.
12 and 21 x 27" Buckeye.

DIRECT CONNECTED ENGINES

1-200 K.W. 250 volt, 200 R.P.M. General Electric Generator and Erico
Roll Engine.
1-150 K.V.A., 2300 volt, 60 cycle, 3 phase generator, direct connected to
four valve engine, 200 R.P.M.
1-100 K.V.A., 2300 volt, 60 cycle, 3 phase generator, direct connected to
piston valve engine, 257 R.P.M.

WATER TUBE BOILERS

1-400 H.P. B. & W., 150 lbs. Iowa.

AIR COMPRESSOR:
1-18x18" Duplex, belt driven.

CONDENSER

1-12 and 20x24 Blake Single-cylinder Jet Condenser, brass fitted.

MACHINERY and SUPPLIES

IMMEDIATE DELIVERY:

BOILERS

- 1-B. & W., 284 H.P. Water Tube; 150 lbs. pres.
- 1-Erie City, 250 H.P. Water Tube; 150 lbs. pres.
- 1-72" x 18" Horizontal Tubular; 125 lbs. pressure.
- 2-60" x 20" Horizontal Tubular; 115 lbs. pressure.
- 1-72" x 16" Horizontal Tubular; 115 lbs. pressure.
- 1-100 H.P. Locomotive Fire Box 100 lbs. pressure.
- 1-50 H.P. Locomotive Fire Box; 90 lbs. pressure.
- 1-50 H.P. Internally Fired; 90 lbs. pressure.
- 1-30 Vertical; 110 lbs. pressure.
- 1-20 H.P. Vertical; 100 lbs. pressure.

ENGINES

- 1-35" x 45" Hamilton Right Hand Corliss.
- 1-20" x 42" Ohio Right Hand Corliss.
- 1-18" x 42" Allis Right Hand Corliss.
- 1-12" x 24" Buckeye Left Hand.
- 1-12" x 24" Douglas Plain Slide Valve.
- 1-10" x 12" Chandler Taylor Plain Slide Valve.
- 1-9" x 10" Arrington & Simms Automatic.

PUMPS

- 1-16" x 3 1/2" x 12" Duplex Steam.
- 1-14" x 10 1/2" x 10" Duplex Steam.
- 1-12" x 7" x 10" Duplex Steam.
- 1-10" x 6" x 10" Duplex Steam.
- 3-6" x 4" x 6" Duplex Steam.
- 4-5 1/2" x 3 1/2" x 5" Duplex Steam.
- 2-4 1/2" x 2 1/2" x 4" Duplex Steam.
- 1-3" x 8" Deane Triplex Single Acting Power Pump.
- 1-Kingsford Horizontal Centrifugal Water Pump. 24" suction, 24" discharge.
- 1-Platte Iron Works Horizontal Centrifugal Water pump, 14" suction, 12" discharge.
- 1-Fulton Horizontal Centrifugal Water Pump. 12" suction, 10" discharge.

AIR COMPRESSORS

- 1-Sullivan Straight Line Air Compressor. 24" steam cylinder, 26" low pressure air cylinder. 16 1/2 high pressure air cylinder, 30" stroke. capacity 1850 cu. ft. per minute.
- 1-Laidlow-Dunn & Gordon Belt Driven Air Compressor, size 25" x 15" x 18"; capacity 1750 cu. ft.
- 1-Chicago Pneumatic Single Stage Steam Driven Compressor, two cylinders, size 22" x 16"; capacity 1700 cu. ft.
- 1-Laidlow-Dunn & Gordon Belt Driven Air Compressor, size 25" x 15" x 18"; capacity 1750 cu. ft.
- 1-Ingersoll-Sergeant High Pressure Steam Driven Air Compressor, two stage, low pressure cylinder 18" x 12", high pressure cylinder 12" x 12"; capacity 600 cu. ft.
- 1-Clayton Duplex Steam Driven Air Compressor, duplex steam and two stage air cylinders, dial steam cylinder 10", low pressure air cylinder 16 1/2", high pressure air cylinder 10", stroke 10"; capacity 125 cu. ft.
- 1-Chicago Pneumatic Fuel Oil Driven Compressor; capacity 300 cu. ft., 100 lbs. pressure.
- 12-New York Air Brake Co. Locomotive Type Two Stage Air Compressors, 10" low pressure cylinder, 8" high pressure cylinder, 8" stroke, 7" steam cylinders.

TANKS

- 25-30,000 Gal. Vertical, Storage.
- 20-10,000 " horizontal, storage.
- 15-5,500 " " "
- 10-3,000 " " "
- 25-1,600 " " "
- 25-500 " ver. or horizontal storage.
- 50-Complete Underground Gasoline Storage Tanks, consisting of 160 gal. tank, 14 gauge material, bearing Underwriters' label, with hand pump, also pipe and fittings complete.
- 25-Complete Underground Gasoline Storage Tanks, consisting of 200 gal. steel tank, 8 1/2 in. material, with hand pump, also pipe and fittings complete.
- 25-22 in. by 54 in., 150 lbs. pressure.
- 20-20 in. by 8 1/2 ft. to 9 1/2 ft., 150 lbs. pres.
- 10-16 in. by 42 in., 150 lbs. pressure.

Send for a free copy of Bulletin No. 265 describing our complete Stocks of Machinery and Equipment.

HARRIS BROTHERS CO.
35th & Iron Sts., Chicago, Ill.

RESALE DEPARTMENT

Slightly used creosoted pine lumber for sale of the following dimensions.

140	pieces	4"	by	8"	by	24"
36	"	4"	by	8"	by	20"
75	"	3"	by	8"	by	24"
125	"	3"	by	8"	by	22"
180	"	3"	by	8"	by	20"
991	"	3"	by	8"	by	18"
311	"	3"	by	8"	by	16"
8	"	8"	by	16"	by	28"
49	"	8"	by	16"	by	24"
1	"	8"	by	16"	by	22"
312	"	8"	by	16"	by	20"
2	"	8"	by	16"	by	18"
2	"	8"	by	16"	by	16"
2	"	8"	by	16"	by	14"
4	"	4"	by	12"	by	22"
275	"	4"	by	12"	by	20"
6	"	4"	by	12"	by	18"
8	"	4"	by	12"	by	16"
64	"	10"	by	12"	by	24"
31	"	6"	by	12"	by	22"
2	"	6"	by	12"	by	20"
551	"	8"	by	12"	by	20"
2	"	6"	by	12"	by	18"
19	"	6"	by	12"	by	16"
3	"	6"	by	12"	by	14"
131	"	4"	by	6"	by	12"
31	"	2"	by	6"	by	12"
2	"	3"	by	12"	by	14"
3	"	3"	by	12"	by	14"
81	"	4"	by	16"	by	12"
5	"	12"	by	12"	by	28"
82	"	12"	by	12"	by	26"
77	"	12"	by	12"	by	20"
2270	"	1 1/2"	by	8"	by	7" and 1 1/2" by 5 1/2" by 7"

DALBY, NOTTINGHAM COMPANY
Llewellyn & 21st St. Norfolk, Va.

FOR SALE

- 1-8 x 8 New Standard Belt Driven Air Compressor.
- 1-150 H.P. Russell Automatic Side Crank Steam Engine.

NATIONAL PRODUCTS COMPANY
East Liverpool, Ohio

- 3-230 H. B. & W. Boilers 160 lbs. Complete with grates and fittings. \$8.00 per HI

f. o. b. cars Jacksonville, N. C.
PFANNMUELLER ENGINEERING CO.
365 First National Bank Bldg. CHICAGO

MOTOR

- 1-50 H.P. General Electric Induction Motor, 220 Volts, 60 Cycles, Form "B," slightly used.

DIXIE MILL SUPPLY CO., INC.
NEW ORLEANS, LA.

HENRY A. KRIES & SONS CO.

Steam and Mill Supplies, Pipe Fittings, Complete Power Plant Equipment, Manufacturers and Machinists, Refrigerating Engineers and Contractors.
6 and 8 W. Lombard St., BALTIMORE, MD.

FOR SALE

220 volt D.C. MOTORS LIKE NEW at sacrifice prices. We are overstocked and closing these out—Low PRICES for immediate sale.—

GREGORY & ELECTRIC CO. Send For Monthly Bargain Sheet
CHICAGO, ILL.
16th & Lincoln St., Chicago Ill.

USED OIL ENGINES

20, 35, 40, 50, 60, 85, 100, 120, 140, 150, 200, 225, 280 and 500 H.P. used oil engines in good condition. Write for prices.

ROBERT P. KEHOE
7 East 42nd St., New York City
Telephone Vanderbilt 9595

POWER PLANT EQUIPMENT FOR SALE

- 2-Ball engines, 15" x 14" 165 H.P. Ea.
 - 1-Buckeye engine, 22" x 33" 400 H.P.
 - 2-Erie vertical water tube boilers, 250 H.P. Ea. (Tubes removed.)
- For further information address
THE OHIO SERVICE COMPANY
COSHOCTON, OHIO

ENGINE GENERATOR SETS UNUSUALLY FINE CONDITION BARGAIN PRICES

- 1-100 KVA, Ridgway 40 degree rated, 2300 volt, 3 phase, 60 cycle, 225 RPM, Strictly Modern Revolving Field Type Alternator, direct connected to a 13x16 Ridgway Four Valve Corliss Type Side Crank Right Hand Self Oiling Automatic Engine. Steam pressure 100 to 125 lbs. Outfit complete with 10 K.W. Ridgway Exciter, Force Feed Lubricator, Throttle and Exhaust Valves. Generator will reconnect for 220, 440 or 600 volt service. Price, F.O.B. cars Central Missouri.....\$2000.00

- 1-50 KVA, Ridgway 40 degree rated, 2300 volt, 3 phase, 60 cycle, 275 RPM, Strictly Modern Revolving Field Type Alternator, direct connected to a 12x12 Ridgway Four Valve Corliss Type Side Crank Left Hand Self Oiling Automatic Engine. Steam pressure 100 to 125 lbs. Outfit complete with 5 K.W. Exciter, Force Feed Lubricator, Throttle and Exhaust Valves. Generator will reconnect for 440 or 600 volt service. Price, F.O.B. cars Central Missouri\$1500.00

- 1-30 K.W. Fort Wayne General Electric 35 degree rated, 250 volt compound wound 300 RPM, direct current Generator, type M.P.L. direct connected to a 9x12 horizontal Simple Slide Valve Automatic Center Crank Left Hand Skinner Engine. Complete with automatic pump oiling system and throttle valve. Price, F.O.B. cars St. Louis, Mo. \$600.00

The above outfits are in beautiful condition. For all practical purposes as good as new units. If interested write or wire us—Instant Shipment.

WOOD AND LANE COMPANY
ST. LOUIS, MO.

MOTOR BARGAINS

- 2-200 H.P. 450 RPM, 3 Ph. 440 V. 60 Cy. New G.E.
- 2-150 H.P. 500 RPM, 3 Ph. 440 V. 25 Cy. Used.
- 1-100 H.P. 900 RPM, 3 Ph. 220 V. 60 Cy. New G.E.
- 2-75 H.P. 900 RPM, 3 Ph. 440 V. 60 Cy. Used.
- 1-70 H.P. 225/450 RPM, 250 V. D.C. G.M.E.
- 15-50 H.P. All Speeds, 3 Ph. 60 Cycles, and 25 Cy. Large Stock Motors and Generators, A.C. and D.C.

V. M. Nussbaum & Co., Ft. Wayne, Ind.

FOR SALE CHEAP

- One—32" 3-ply used Leather belt 100 ft. long.
 - One—48" 3-ply used Leather Belt 100 ft. long.
- And various widths of Double Leather Belting. All in excellent condition.

B. F. GUMP CO.
431 S. Clinton St. Chicago, Ill.

OIL AND GAS ENGINES

For Sale

Prompt Deliveries

New and Rebuilt Full Diesel Type Oil Engines

- 2-450 B. H. P. vert., 6 cyl., coupled to 3-ph. 60-cyc. A. C. generators.
- 1-450 B. H. P. vert., 6 cyl., belted.
- 2-225 B. H. P. vert., 3 cyl., beltd. or cpd.
- 1-225 B. H. P. vert., 3 cyl., coupled to 200 K. W. A. C. 3-ph. 60-cyc. 2200-v. generator.
- 1-170 B. H. P. vert., 3 cyl., belted.
- 1-120 B. H. P. vert., 3 cyl., coupled to 85 K. W. 3-phase. 60 cyc. 2300-v. generator.
- 1-120 B. H. P. vert., 3 cyl., coupled or belted.
- 1-60 B. H. P. vert., 3 cyl., beltd.
- 1-40 B. H. P. vert., 3 cyl., beltd.
- 2-25 B. H. P. horiz., F.M., type "T" belted.

- 1-150 B. H. P. vert., 3 cyl., coupled to 100 K. W. 250-v. D. C. generator.
- 1-100 B. H. P. vert., 3 cyl., coupled to 62 1/2 K. W. 125-250-v. D. C. generator.

Above only partial list—write or wire us full details your requirements.

A. McMillan 628 Monadnock Block, Chicago
Specialist in Diesel Oil and Internal Combustion Engineering

Compare These Motor Prices

These are only a few of the bargains we offer, picked at random from our large stock.

New Motors

Hp.	Make	Ph.	Cy.	Type	Volts	Rpm.	Price
550	Cr.-Wh.	3	60	Sl. ring	2200	1170	\$1875.00
60	Gen. Elec.	3	60	KT.	220	1160	486.00
4—50	Gen. Elec.	3	60	Sl. ring	440	690	923.00
8—50	Gen. Elec.	3	60	Sl. ring	220	1200	762.00
50	Gen. Elec.	3	60	Sq. cage	550	600	676.75
40	Westghae.	3	60	CS.	220	1200	424.75
40	Gen. Elec.	3	60	Sl. ring	220	1200	684.75
30	Gen. Elec.	3	60	Sl. ring	440	720	763.00
2—25	Gen. Elec.	3	60	Sl. ring	220	1200	552.00
12—25	Gen. Elec.	3	60	KT.	220	1200	275.00
20	Gen. Elec.	3	60	Sl. ring	220	1200	468.75
5—20	Gen. Elec.	3	60	KT.	220	1200	237.00
15	Gen. Elec.	3	60	Sl. ring	220	1200	418.00
4—15	Gen. Elec.	3	60	KT.	220	1800	187.00
10	Gen. Elec.	3	60	Sl. ring	440	1200	384.75
5—10	Bell	3	60	Compensat.	220	1800	165.00
6—10	Gen. Elec.	2	60	KQ.	220	1200	187.00
6—	7½ Bell	3	60	Compensat.	220	1800	145.00
13—	5 R. & M.	3	60		220	1700	79.00
15—	3 Gen. Elec.	3	60	KT.	550	1800	60.00
200—	¼ W. E.	1	60	SA	110	1800	17.75
55—	¼ W. E.		DC	SD	110	1725	18.75

Used Motors

Hp.	Make	Ph.	Cy.	Type	Volts	Rpm.	Price
400	Westghae.	3	60	Synchron.	2200	450	\$1000.00
200	Gen. Elec.	3	60	Sl. ring	2200	600	1400.00
200	Gen. Elec.	3	60	Wound ro.	220	580	975.00
200	Westghae.	2	60	Sl. ring	220	580	1275.00
133	Gen. Elec.	2	60	Synchron.	2200	900	600.00
150kva.	Stanley	2	60	Alternator	2400	900	550.00
2—100	Gen. Elec.	3	60	Sl. ring	440	514	1100.00
75	Gen. Elec.	3	60	Sl. ring	2200	900	825.00
75	Gen. Elec.	3	60	Sl. ring	220	900	600.00
2—50	Burke	2	60	Sq. cage	220	360	750.00
2—50	F.M.	3	60	Sq. cage	220	900	325.00
2—50	Burke	3	60	Sl. ring	220	1200	475.00
50	Westghae.	3	60	Sq. cage	440	580	500.00
50	Allis-Chal.	3	60	Sq. cage	2300	850	500.00
3—50	Gen. Elec.	2	60	Sq. cage	220	865	400.00
50	Gen. Elec.	3	60	Wo. rotor	220	514	600.00
50	Gen. Elec.	3	25	Sq. cage	220	715	400.00
40	Westghae.	2	60	Sq. cage	220	1120	300.00
40	Allis-Chal.	3	25	Sq. cage	440	720	375.00
3—37	Gen. Elec.	3	60	Sl. ring	220	750	450.00
3—35	Lincoln	3	60	Sq. cage	440	1200	245.00
2—30	Ideal	3	60	Sq. cage	440	1150	300.00
2—30	Westghae.	3	25	Sq. cage	220	710	300.00
30	Gen. Elec.	3	25	Sl. ring	220	500	500.00
2—25	Wagner	3	60	Sl. ring	440	1150	375.00
3—20	Westghae.	3	25	Sq. cage	220	720	265.00
2—15	Westghae.	3	25	Sq. cage	220	700	200.00

Direct Current

Hp.	Make	Ph.	Cy.	Type	Volts	Rpm.	Price
90	Cr.-Wh.			Comp. wo.	500	690	575.00
90	Diehl			Shunt wo.	240	460	575.00
90	Gen.-Elec.			Comp. wo.	220	625	775.00
90	Westghae.			Comp. wo.	220	675	625.00
75	Diehl			Shunt wo.	220	340	575.00
4—47	Westghae.			Comp. wo.	500	600	375.00

Some have not been used more than 60 days.

All carry our usual ONE YEAR GUARANTEE. 1000 other bargains. LARGEST STOCK OF ITS KIND IN AMERICA.

NATHAN KLEIN & CO.
MOTORS 208 CENTER ST., N.Y. DYNAMOS

HOISTS DERRICKS

ELECTRIC HOIST AND DERRICK \$1600

PRICES F. O. B. CARS, HOG ISLAND, PA.

You Save at Least \$2000

These Hoists and Derricks are standard late models, manufactured by The American Hoist & Derrick Co., St. Paul, Minn. They are almost new, and every one is GUARANTEED to be in first-class running order.

The Hoists have two drums and swingers, and are complete with Starting and Control Equipment. Either side or bank control, and rated 6000 pounds single line on each hoisting drum. Slewing rope 36 ft. per minute, and hoisting rope speed 160 ft. per minute. The MOTORS are Otis 37 H.P. A.C., 60 cycle, 3 phase, 440 volt, slip-ring induction type and, if desired, may be changed to suit the individual current requirements of purchasers at cost.

DIMENSIONS OF DERRICKS

Mast.....16 in. square, 40 ft. high.
Boom.....Made of (2) 14 in. sq. timber 48 ft. long apliced to lengths of 80 ft. with (2) ¾ in. and (2) 1½ in. truss rods.
Stiff Legs. 14 in. sq. 55 and 60 ft long, or 16 in. sq. 50 ft. long, will furnish either length desired, capacity 5 to 10 tons. Bull wheel 16 ft. dia. Principal sheaves 16 in. dia. and 14 in. single blocks.
The Cable which was formerly used will be given with each purchase of a Hoist and Derrick.

These Hoists and Derricks are assembled on the Grounds at Hog Island and may be inspected at any time. This Equipment is being sold complete and in units of a Hoist or Derrick if desired. Immediate shipment can be made anywhere, but QUICK ACTION IS IMPERATIVE.

Wire, Phone or Write for Detailed Information, Folder, Etc.

THE ELECTRIC HOIST & DERRICK CO.

WAREHOUSE NO. 10, HOG ISLAND, PA.

BLACK AND GALVANIZED STEEL PIPE

IMMEDIATE DELIVERY FROM STOCK

BLACK PIPE $\frac{1}{4}$ " to 20"GALV. PIPE $\frac{1}{4}$ " to 8"

Cast Iron Bell and Spigot Fittings, Valves and Hydrants

Cast Iron, Malleable and Brass Screwed Fittings

Cast Iron and Steel Flanged Fittings and Valves

Brass Valves

Cast Iron and Forged Steel Flanges

Steam Specialties

25th & Morris Sts.

Chas. J. Grant Supply Co. Philadelphia Pa.**FOR SALE****PIPE SECOND HAND All Sizes $\frac{1}{8}$ " to 24"**

Furnished with new threads and couplings, suitable for every practical purpose.
Also large assortment of Contractors' Equipment, Hoisting Engines, Boilers, Concrete Mixers, etc.; all thoroughly overhauled.

MARINE METAL & SUPPLY CO.

167 South Street

NEW YORK

PIPEALL SIZES SECOND-HAND
FOR ALL PURPOSES**FRANK GRIFFITH**

412-442 Moyer Street,

Philadelphia, Pa.

PIPE - VALVES - FITTINGS

Have just purchased from the Government the following Black and Galvanized Pipe (NEW).

17,000 ft. $1\frac{1}{2}$ "; 33,000 ft. 2"; 64,000 ft. $2\frac{1}{2}$ "; 49,000 ft. 3"; 85,000 ft. $3\frac{1}{2}$ "; 90,000 ft. 4"; 10,000 ft. $4\frac{1}{2}$ "; 11,000 ft. 5"; 12,000 ft. 6"; 19,000 ft. 7"; 20,000 ft. 8"; 5,000 ft. 9"; 10,000 ft. 10"; 12,000 ft. 12";

Can furnish random lengths or cut to sketch. Price low for immediate shipment.

WE ALSO HAVE 4,000 tons of Flanged and Screwed Fittings and Valves from $\frac{1}{4}$ " to 28", and invite your inquiries covering same.**HANOVER SALES COMPANY**

P. O. Box 856

Philadelphia, Pa.



Large quantity Pipe, with threads and couplings, used in Government plant a short time.

Rods—100 tons 7/8" Round
Rods, 14' to 22' lengths.

Central Pipe & Supply Co.

Box 1099

CHARLESTON, W. VA.

FOR SALE**10-K.W. GENERATOR and SWITCHBOARD**

1—10 K.W. Enberg Generator with large switchboard and one spare armature all in good condition for \$600. It is the lighting plant from the Shipping Board vessel "CAWKER."

WOOD TOWING CORPORATION
Norfolk, Va.**PIPE AND ROTARY RIGS**

FOR SALE: 14 complete California, Texas and Louisiana model drilling rigs. Hundreds of thousand feet 1" to 12" pipe and oil well supplies at less than one half price.

BROOKS SUPPLY COMPANY Beaumont, Texas**TURBINE**

completely overhauled at factory, never been used since, good as new. Rated H.P. 55-65, 1720 R.P.M. Steam Pressure 125. Manufactured by Kerr Turbine Co.

Write or wire.

PALMER-RHODES COMPANY
MIDVILLE, GA.**FOR SALE****CAST IRON PIPE CLASS "C"**

12" and 24" Flanged, faced and drilled.

Practically New.

Price \$30.00 Net ton F.O.B. Nitro, W. Va.

Also all sizes Steel Pipe.

LEBOW BROTHERS COMPANY

P. O. Box 1375

CHARLESTON, W. VA.

BELT DEALERS ATTENTION

18" 10-ply Anaconda Belt, Brand new, 400 ft. rolls, \$2.00 per ft.

8" 6-ply Goodrich "Pilgrim" Belt, Original full rolls, 40 cents per ft. All guaranteed new belt.

Several slightly used 10 and 12-ply transmission belts 18 to 34" wide. All high-grade brands. Special bargain prices. Send us your specifications. Get in on this while the stock lasts.

I. BLUFORD & CO.

501 N. 15th St.

Richmond, Va.

PIPE NEW PIPE

Owing to the present shortage of pipe we are pleased to advise that we have just purchased from the Government 1800 tons of Black and Galvanized new random length pipe from 2" to 12" which we can offer at attractive prices for immediate shipment.

To those who can use $3\frac{1}{2}$ " Black or Galvanized Pipe please be advised that we can give a very substantial discount on same. Will ship plain end, flanged or screwed.

COMMONWEALTH PIPE & SUPPLY COMPANY

98-104 Merrimac St.
BOSTON, MASS.

PRICED TO SELL QUICKLY

48"x48"x16' Pond Planer, 3 heads.

30"x30"x8' Fitchburg Planer.

13"x5' Landis Universal Grinder.

8' Sellers Double Head Boring Mill.

20" Newton Slotter.

50 Lathes, 43" to 16" swing.

47 Punch Presses.

14 Milling Machines.

15 Turret Lathes.

4—50 H.P. Allis-Chalmers Ind. Motors, 3 phase, 60 cycle, 440-220 volt, 865 RPM.

3—40 H.P. Allis-Chalmers Ind. Motors, 3 phase, 60 cycle, 220 volt, 900 RPM.

Large Stock of Boilers, Engines, Pumps, Air Compressors, and General Machinery.

Send for Complete List.

HERMAN L. WINTERER

949 N. Front St.

Phila., Pa.

Pipe, all sizes, bought and sold. What sizes are you in the market for? What sizes have you for sale?

PIPE & CONTRACTORS' SUPPLY CO.
3 Dover Street - - - NEW YORK

25 CYCLE MOTORS

We carry in stock, motors and generators of every description—but have an exceptionally large assortment of 25 cycle—our location being in the heart of the greatest 25 cycle power district.

One of our offerings:
52-KT-333—20 H.P. G.E. 40° 3-Ph., 25-Cy., 440 V., 750 R.P.M. Motors with CR-1034 compensators.

Latest Type! Rock-Bottom Price.

Let us quote you.



**COMPLETE
MINERAL GRINDING EQUIPMENT
FOR SALE**

3—42" Emery Mills, 2-Jaw Crushers, 3-Bolting Reels, 1-Sturtevant Roller Mill, 2-Steam Engines, 1-Boller.

CONSOLIDATED PRODUCTS COMPANY, Inc.
15 PARK ROW, NEW YORK CITY

**One Set of
PYRAMID TYPE
POWER BENDING ROLLS**
with 6 in. by 8 ft. rolls. Belt driven.
Good condition.

FITZ WATER WHEEL COMPANY
HANOVER, PA.

**NEW AND SECOND-HAND
MACHINE TOOLS**

HENRY PRENTISS & CO.
Incorporated

149 Broadway New York, N. Y.
Warehouse: Jersey City

150 H.P. 220/440 Volt, 3 Phase, 60 Cycle WESTINGHOUSE Slip Ring Motor, 860 RPM.

100 H.P. 220/440 Volt, 3 Phase, 60 Cycle, BURKE Induction Motor, 514 RPM.

300 H.P. 220 Volt Compound Wound WESTINGHOUSE Direct Current Motor, 460 RPM.

Hundreds of Other Motors

Send for our October list of the largest stock in the United States of slightly used and thoroughly overhauled MACHINE TOOLS, POWER, ELECTRICAL AND CONTRACTORS' EQUIPMENT.

WICKES MACHINERY CO.
Jersey City, N. J.
Established 1900

**RAILROAD AND CONTRACTORS'
EQUIPMENT**

**RAILROAD and CONSTRUCTION
EQUIPMENT**

IMMEDIATE DELIVERY

Thomas F. Carey Co.
120 Liberty St., New York, N. Y.

LOCOMOTIVE CRANES FOR SALE

- 1—Browning 15-ton 8-wheel 46 ft. boom, double drums.
- 2—Browning 4-wheel electrically operated.
- 2—Industrial 15-ton 8-wheel.
- 1—Industrial 7½-ton 4-wheel.

HOISTING MACHINERY COMPANY
50 Church Street - - - New York

EQUIPMENT FOR SALE

- 1—Austin Gasoline Road Roller, 10 Ton. Good order\$1500.00
- 1—Gallon Iron Gravel Screening Plant. Good as new\$650.00

CHARLES T. EASTBURN
Room 803 Broad St. Bank Building
TRENTON, N. J.

FOR SALE

- 1—Austin Gasoline Road Roller, good as new.
- 1—Gallon Gravel Screening Plant, used only one season.

Charles T. Eastburn
803 Broad St. Bank Bldg., Trenton, N. J.

LOCOMOTIVE CRANE

- 1—25-ton, 8-wheel Industrial Type H, built 1918, A.S.M.E. boiler, 50-ft. boom, double drums, thoroughly overhauled. Excellent condition.

GREY STEEL PRODUCTS CO.
111 Broadway New York, N. Y.

FOR SALE

Austin Caterpillar Crane, will use ¾ yd. drag-line, clam-shell or orange-peel buckets. Just the thing for handling sand, gravel, coal, etc. Also suitable for small drainage work. Location, Parsons, Kans. Immediate delivery, first-class condition. Address

E. M. SCHEFLOW
23 SHERWIN BLOCK, ELGIN, ILL.

STEAM SHOVELS FOR SALE

- 1—Erie Type "A" ¾ yd. steam shovel. Only used 90 days.
- 1—Erie Type "B" high lift ¾ yard steam shovel.
- 1—Bucyrus 14-B steam shovel on Caterpillars. Rebuilt.
- 1—Browning 50-ton locomotive crane. New 1918. Used about two years.

Ask for our complete list of STEAM SHOVELS, LOCOMOTIVES and CARS.

DEMPSTER EQUIPMENT CO.
DEMPSTER BUILDING KNOXVILLE, TENN.

CONSTRUCTION MACHINERY

Pavers Concrete Mixers Steam Shovels
Cranes Locomotives Drag-Lines
Tractors

A complete line of Construction Machinery available at all times. Write, Phone or Wire your inquiries and they will receive prompt attention.

ALFRED J. FORSCHNER
Real Estate Trust Bldg. Philadelphia, Pa.

Locomotives, Steam Shovels, Locomotive Cranes, Cars,
New and Relaying Rail

WE HAVE FOR SALE

- 40 Standard and 36" Gauge Modern Direct-connected Locomotives, in all types and weights from 8 to 75 tons.
- 10 Standard and 36" Gauge Geared Locomotives, all weights.
- 15 Steam Shovels and Locomotive Cranes of different types and sizes.
- 3000 tons Relaying Rails, all sizes, on our Birmingham yards.
- 100 sets 35 and 40-lb. Frogs and Switches; good as new.

Birmingham Rail & Locomotive Co. BIRMINGHAM, ALA.

FLAT CARS BOX CARS

- 300 flat cars, standard gauge, 36 to 40 ft. capacity 40,000, 50,000, 60,000 and 80,000 lbs.
- 35 gondola cars 60,000 and 80,000 lbs. capacity 25' 7" to 36' long, one and four board high, flat and hopper bottom.
- 15 box cars, standard gauge, 36 ft., 50,000 lbs. capacity.

All equipped with air and hand brakes.

HENRY A. HITNER'S SONS CO.
4501 Richmond St. Philadelphia, Pa.

In stock for immediate delivery

Two sets of No. 1, four sets of
No. 2, Storm Culvert Forms,
Brand New, at Half Price.

C. TURNER COMPANY

James Building
CHATTANOOGA, TENNESSEE

RAILS

60-70-80-85 lb. relayers

FROGS & SWITCHES

70-80-85 lb. frogs, switches, guard rails, stands, etc.

ROAD MACHINERY

Pavers, mixers, rollers, shovels, cranes, crushers, etc.

HENRY LEVIS & CO.

Commercial Trust Bldg. Philadelphia, Pa.

40-lb. Relayers**500 tons first-class**

40-lb. relaying steel rail, with angle splice bars.

Ready immediate shipment near Harrisburg, Pa.

Rail of other weights and switches in stock.

E. H. WILSON & COMPANY

COMMERCIAL TRUST BUILDING

PHILADELPHIA

FOR SALE50-4 wheel Std. gauge flat cars.
4-60 M Lbs. cap. steel underframe dump cinder cars.
3 ton Std. gauge Plymouth Gas. Locomotive.**WALTER A. ZELNICKER SUPPLY CO.**
ST. LOUIS.

Write for our new big bulletin No. 300

**MARION STEAM SHOVEL
FOR SALE CHEAP**1 cu. yd. railroad type, boom-swing, in good condition, near New Bern, N. C.
Price \$4,000.00**L A U**

1100 Garrett Building, Baltimore, Md.

**FOR SALE OR RENT
Steam & Electric COMPRESSORS
of all sizes.**Hoisting Engines
Derricks
Locomotive Cranes
Concrete Mixers
Orange Peel and Clam Shell Buckets
Motors, Generator, and Refrigerator Unit
Steam and Electric Shovels.**COMPLETE STOCK READY FOR IMMEDIATE DELIVERY****ARCHER ARMSTRONG & CO.**4839 A Grand Central Terminal, N. Y. City
PHONE Vanderbilt 10498**FOR SALE**

- 1-Barber-Greene loader, 3 months old
- 1-Barber-Greene loader, one year old
- 2-21E Foote paving mixer
- 1-10-ton three wheel Kelly-Springfield Roller
- 10-Fords with one yard bodies,, 3 months old.
- 1-15-ton Bucyrus locomotive crane, 1918
- 2-No. 3 Keystone shovels

Above equipment located at Norfolk, Va.

Norfolk Equipment Corporation
601 Bankers Trust Building, Norfolk, Va.**The West Va. Rail Co.
HUNTINGTON, W. VA.****Manufacturers Light Steel Rails**
12, 14, 20, 25, 30, 35, 40, 45 lbs. per yd.
We are also dealers in Relaying Rails.
All Sizes**RELAYING RAILS**

22,500 feet—40 lbs. per yard
14,000 feet—70 lbs. per yard
15,000 feet—75 lbs. per yard
11,000 feet—80 lbs. per yard
200,000 feet—90 lbs. per yard

With necessary angle bars.
Steam Shovels—Locomotives—Cars—Railway and Contractors Equipment.

E. C. SHERWOOD, 46 Church St., New York, N. Y.**RAILS TRACK EQUIPMENT****W. C. BRIDDELL CO., Inc.
BALTIMORE.****IRON — STEEL SCRAP****ASPHALT PLANT
SPECIAL**

We have for sale one rebuilt No. 2 Merriman 1200 yard One-Car Steam Melting Asphalt Plant. In fine condition, on which we can make good delivery.

Here's an opportunity to get a real plant quickly and at a right price. Better get in touch with us immediately.

The East Iron & Machine Co.

Lima, Ohio

FOR SALE

OSGOOD "18"

 $\frac{3}{4}$ -yd. Traction Steam Shovel
Located in Southern Maryland**O. F. TERRY**Rm. 206, 11 E. Lexington St. Baltimore, Md.
Plaza 8326

If you wish to keep posted on the progress of the South, read the

Manufacturers Record

Exponent of America

Price \$6.50 a year Six months for \$3.50

**HARRY BENJAMIN
EQUIPMENT CO.**722 Central National Bank Bldg.
St. Louis, Mo.**RAIL**Second-Hand and New
FASTENINGS—New Bolts, Nuts and Spikes.New Frogs, Switches, Crossings and All Accessories.
Carload and smaller lots. Rails cut to structural lengths at attractive prices.

We Can Ship Immediately

**We Purchase Abandoned
Plants and Railroads****RAILS NEW & RELAYING
ALL WEIGHTS**

Let us know your needs. We may have material in stock near you.

WE BUY RAILS FIT TO RE-LAY
Robinson & Orr Pittsburgh, Pa.
New Frogs and Switches at low prices.**RAILS—TANKS**

125 tons 60 pound relaying rails, with frogs and switches, at Baltimore, A-1 condition. Steel tanks, round, square 50 to 500 gals.

H. KLAFF & CO.Central Ave., Gough & Stiles Sts.
BALTIMORE, MD.**NEW RAILS RELAY**650 Tons 56-Lb. Rail
150 Tons 35-Lb. Rail**SINGER IRON & STEEL CO.**

506 First Nat'l Bank Bldg., Houston, Texas

**RAILS NEW AND
RELAYING****Track Accessories****NATIONAL STEEL RAIL CO.**

I. H. COHN, President

Third National Bank Bldg. St. Louis, Mo.

RAILS IN STOCK

With Angle bars to match all sections.

Wire or write for prices.

M. K. FRANK**FRICK BUILDING PITTSBURGH, PA.****RAILS**

Complete stock 16 lb. to 100 lb. sections

Prompt shipment

Write—Wire or Telephone

LOUIS COHEN & SON
Wilkes-Barre, Pa.**HOISTING ENGINES**Almost every size and for every duty.
Steam, Electric and Gasoline,**STEAM PUMPS**18" x 10" x 12" Worthington 1000 gal. Fire Pump.
65-10" x 8" x 12" Buffalo Brand new, special price.
Many other sizes and makes,**COMPRESSORS**20 and 12 x 14 Chicago Pneumatic 1145 cu. ft.
22 and 14 x 18 Laidlow, Dunn and Gording 1200 cu. ft.
Many smaller ones,**BOILERS**

Return Tubular, Vertical and Locomotive Type, nearly every size new and second-hand in Stock.

LOUIS A. TARR, INC.N. W. Cor. Sharp & Conway Sts.
BALTIMORE, MD.

Eliminate Tie-ups

The "CINCINNATI" is designed by engineers who have devoted their lives to the solving of track problems.

Being carefully designed to eliminate tie-ups, they save time and money.

The Best material obtainable is used and the workmen are masters in their line.

Our constant endeavor to eliminate any possible error in design assures the highest standards of excellence.

The Cincinnati Frog & Switch Co.
Cincinnati, Ohio

Representatives:
The Herbert Crapster Co., Inc.
1 Madison Ave.
New York City, N. Y.
T. H. Edelblute Co., 302 Wabash
Bldg., Pittsburgh, Pa.
Mr. F. K. Holmstead, Charles-
ton, W. Va.



HENRY H. BABER

NEW and RELAY RAILS

Logging Equipment, Track Materials and Supplies

LOCOMOTIVES, CARS, STEAM SHOVELS and CRANES

Dickson Building - - - NORFOLK, VA.

KILBY FROG & SWITCH COMPANY

BIRMINGHAM, ALABAMA

Manufacturers

FROGS, SWITCHES, CROSSINGS, Etc.

SECOND-HAND MACHINERY CONTRACTORS, EQUIPMENT

Stacks—Tanks—Pipe, etc.

What are your requirements

HENRY A. HITNER'S SONS CO.

4501 RICHMOND ST., PHILADELPHIA, PA.

THE WEIR FROG CO.

Manufacturers of

Frogs, Switches, Crossings, Rail Braces, etc.

CINCINNATI, OHIO

Manufacturers of Balkwill Articulated Cast Manganese Crossings

RELAYING RAILS TRACK ACCESSORIES

A large stock of good relayers in weights from 30 lb. to 90 lb. per yard for shipment as quickly as cars are placed for loading. Can ship complete with necessary splice bars, angle bars, bolts and spikes.

STANDARD RAIL & STEEL COMPANY
217 Cass Ave., St. Louis, Mo.

FOR SALE

- 1—7" x 10" 3-Drum D.C. Stroudsburg skeleton Hoisting Engine complete with Swinging Gear attached, good as new.
- 300-ft. of 24" gauge Portable track, 12 lb. Rail.
- 2—1-yd. Steel Wiener Cars 3-way 24" gauge.
- 1—1-yd. Hayward Class E. Orange Peel Bucket.
- Have 16 lb. and 20 lb. Portable track, Cars, Etc.

JOHN M. GREENE
Drexel B'dg. Philadelphia, Pa.

FOR SALE A BARGAIN

- 1—5 TON, 4 wheel, BROWN Locomotive Crane. S.G., with 1/2 Yard Owens Clam Shell bucket—A-1 Condition.
- 18—4 yard D.D. Western cars, 36" gauge, thoroughly overhauled practically new.

THE HARVEY COMPANY
113 South St. Baltimore, Md.

USED EQUIPMENT FOR SALE IMMEDIATE DELIVERY

CABLEWAY

- 1—Lambert 800 Ft. 1 1/4 in. Cableway complete, except endless line. In good condition, located at Spartanburg, S. C.

HOISTS (Steam)

- 1—John F. Byers, double cylinder, double friction drum 7 1/2 x 9 Hoisting Engine, complete with boiler and with direct swinging gear. Good condition. Engine No. 4416. Located at Gaffney, S. C.
- 1—Lambert D. D. D. C. 6 1/4 x 8 Hoist complete with boiler and fittings.
- 1—Lidgerwood, double friction, double drum hoist with boiler and fittings complete, in good running order.
- 1—John F. Byers, double friction, double drum hoist with boiler and fittings complete. In good running order.
- 1—J. S. Mundy, triple drum, screw friction hoist, size 7 1/2 x 12, practically new and in excellent condition. (F. O. B. Spartanburg, S. C.)
- 1—American, double cylinder, double drum 8 1/2 x 10, Hoisting Engine. Excellent shape. F. O. B. Spartanburg, S. C.
- 1—reversible Single drum mine hoist D. C. with cable.

STEAM DRILLS

- 8—Ingersoll-Rand Rock Drills. Located at Spartanburg, S. C., complete with tripod and weights.
- 1—Ingersoll-Rand Jack Hammer complete with steel hose and parts.

Also other equipment not listed

Willard, Boggs & Co.
Rez Theatre Bldg., SPARTANBURG, S. C.

BARGAIN

- 36" Gauge Locomotives
- Good engines—Ready for service
- 1—Vulcan 10x14" 14 ton four wheel saddle tank.
- 1—American 10x16" 18 ton four wheel saddle tank.
- Send for specifications and prices.

E. C. SHERWOOD
50 Church St. New York

FOR SALE.

- 1—14x24 Baldwin Saddle Tank Standard Gauge Locomotive.
- 1—2x14 Baldwin Saddle Tank Standard Gauge Locomotive.
- 1—Erie B Traction Steam Shovel.
- 1—10 Ton Industrial four-Wheel Locomotive Crane.

Chas. T. Lehman Machinery Co.
Birmingham, Ala.

GEORGIA CAR & LOCOMOTIVE COMPANY

Offices and Works, Atlanta, Georgia

REBUILT RAILROAD EQUIPMENT

Locomotives—Cars—Coaches

Standard Trucks for Logging

REPAIR PARTS for CARS and
LOCOMOTIVES

LOCOMOTIVE CRANES

- 1—15-20 ton Brown hoist 8 wheel M.C.B. 40 ft. boom, bucket operating drums.
- 1—15 ton O. & S. 8 wheel M.C.B. 70 ft. boom with 25 ft. removable section, double power driven drums also dragline attachments equipped with outriggers.
- 1—15-ton McMyler Crane 8 wheel M.C.B. 40' boom, single line, fine condition, attractive price.

NEW TRACTION CRANES

Full revolving Road Cranes 7 ton capacity with 1/2 yd. bucket.

STEAM SHOVELS

- 1—Marion model 31 1-yd. dipper, traction wheels shop No. 3068.
- 1—Marion model 28 1/2 yd. dipper, traction wheels shop No. 3328.
- 1—Osgood No. 18 high lift 1/2 yard dipper, caterpillar traction.

LOCOMOTIVE

American 6 wheel switcher, cylinders 18 x 24" drivers 44" wheel base 11' 6", weight 60 tons.

ASPHALT PLANT

- 1—Iroquois 800 yd. Road Asphalt plant Complete.

ROAD ROLLER

- 1—Kelly Springfield 10 ton 3 wheel D.C. Steam Roller.

BENDING ROLLS

- 1—Set Wickes rolls, 10' 6" between housing 1 1/2" plate, Outer roll 20", Inner rolls 16".

CRUSHER OUTFIT

- 1—Gates 18-E; 60" x 20" revolving screens; 42" bucket elevator 50 ft. centers.

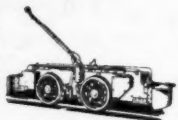
We carry in stock concrete mixers, air compressors, hoisting engines, buckets, pipes, cars and other equipment and machinery.

F. MAYER

53 W. Jackson Blvd. Chicago, Ill.



A Type for
every project

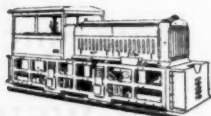
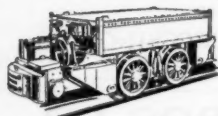


A Size for
every job

LOCOMOTIVES

Gasoline
Storage Battery
Trolley
Combination

The Thousands of Whitcomb Locomotives in successful operation speaks for the thoroughness of their design and construction.

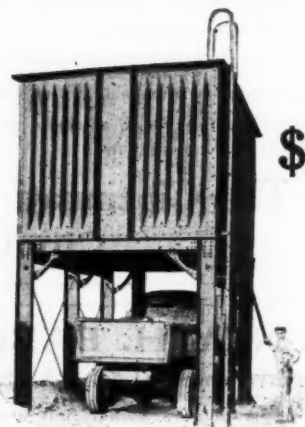


Write for Bulletins covering the Type you are interested in.

Geo. D. Whitcomb Company
Rochelle, Illinois, U. S. A.

STEEL BINS

For Sand, Gravel, Cinders, Coal, etc.



\$695

Capacity
70 Cu. Yds.

The steel bins we illustrate herewith measure 10' x 12' x 15' and have a capacity of 70 cubic yards. Height over all 21'. Truck clearance is 10' as illustrated. These bins are particularly adapted for Road Contractors, Material Yards and Coal Yards. The photograph indicates what a great time and labor saver they are, as trucks can be loaded in a very short time and eliminates double handling. Their portability is an added feature as they are all bolted together in the field, no hot rivets being required. They are far superior to wood which soon decays. Price f. o. b. Chicago \$695.

We also manufacture a bin with a hopper bottom having a capacity of 80 cubic yards with one opening. Essentially the same construction as the flat bottom bin. Price, \$795.00 f. o. b. Chicago.

HARRIS BROTHERS CO.

1349 West 35th Street, Chicago, Ill.

PORTER

A favorite for every purpose
for over a Half
Century.



H. K. PORTER COMPANY
Pittsburgh, Penna.

LOCOMOTIVES

TruckKraNE



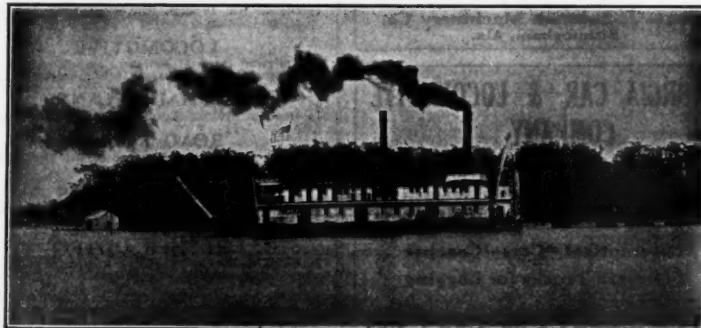
**Crane Work
Wherever
A Truck
Will Go!**

Get acquainted with the Byers "TruckKraNE"—it's simply Byers Auto-Crane Model "1" mounted on a motor truck, but how it does save time on the job. Can be driven anywhere just like an automobile. Ask for "TruckKraNE" Bulletin.

THE BYERS MACHINE COMPANY

240 Sycamore Street Ravenna, Ohio

Builders of Full Circle Cranes, "Auto-Cranes," Buckets, Hoists, etc.



DREDGING

Filling, Land Reclamation, Canals
and Port Works

River and Harbor Improvements,
Deep Waterways and Ship Channels

We are especially equipped to execute all kinds of dredging, reclamation and port works in Southern waters.

CONTRACTORS TO THE FEDERAL GOVERNMENT

Correspondence Invited from Southern Officials and Corporate and State Interests Everywhere.

Largest Plant Longest Experience

NEW YORK
21 Park Row

- ATLANTIC, GULF AND PACIFIC COMPANY -

HOUSTON
Scanlan Bldg.

Handling materials is one of your costs.
Increase your profits by reducing your costs.
with the installation of

O. S. Dependable

Locomotive Cranes
Clam Shell Buckets
Orange Peel Buckets

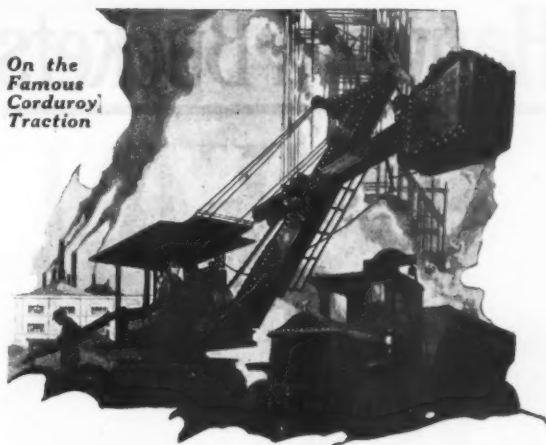
send for catalogues 18 & 21.



Orton & Steinbrenner Co.

Offices: 608 So. Dearborn St., Chicago, Ill.
Shops: Huntington, Indiana.

On the
Famous
Corduroy
Traction



Powerful Crowding Motion

One reason for the tremendous power and digging capacity of the P & H gas or electric shovel is the real crowding motion—the dipper is forced to bite into the hardest soils or rocks by means of a manganese steel rack and pinion actuated by a heavy steel thimble-roller chain driven from a set of planetary gears.

The simplicity and ruggedness of this mechanism are reasons for long life,—troubles with cables or other improvised crowding mechanism are eliminated.

Available as required for each motion, hoisting, crowding, and traveling is the whole energy of the powerful gas or electric motor with its fly wheel effect.

The machine is strictly one-man operated and is ready for action at the twist of the crank. No extra working time is spent in getting ready for firing up or for

banking fires when work is over—no fuel or water hauling expense.

The real economy and bulldog tenacity make the P & H Shovel the shovel of today.

Excavating Machinery Division

PAWLING & HARNISCHFEGER CO.

Established in 1884

3827 National Ave., Milwaukee, Wis.

Offices and agents in Principal Cities

P. & H. Economies

One-Man operated,
Low Fuel consumption,
Can maneuver anywhere,
 Easily converted into
 crane or skimmer,
 Operated by gas or elec-
 tricity,

No increased Fire Risk,
Long Life due to superior
 construction,

Backed by 38 years of
 high grade machine
 building.

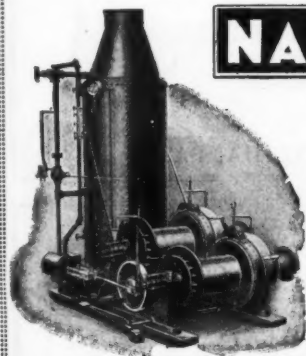
NATIONAL

Hoists
Derricks
Pile Hammers

Send for Catalogs

National
Hoisting Engine Co.

Office and Works:
Harrison, New Jersey



The KEYSTONE is a highly versatile traction steam shovel with all the efficiency of specialized design, usable with three different interchangeable scoops—Skimmer, Ditcher and Clamshell—for Road Grading, Trenching, Back Filling, Cellar Digging, Pit Mining, Loading, Unloading and Handling Materials. Can be equipped with electric motor drive for use in buildings.

Saves first cost, moving cost and upkeep, and is readily sold or rented for any sort of excavation job. A reliable road shovel of remarkable adaptability to other uses.



Model 4
14 ton
All Steel
Excavator
with 16 yd.
Skimmer

Keystone Driller Company, Beaver Falls, Pa.

170 Broadway, New York; Mendota, Ill.; Chicago, Ill.



GAS SHOVEL

Hayward Buckets



For That Dredging Job

All-round dependability—that's what engineers and contractors want in a bucket on a dredging job. They may be dredging in mud—but supposing they pick up a heavy boulder?

Rocks, boulders, and piling hold no terror for a Hayward. Haywards are built to withstand the unexpected gruelling jobs. Built for maximum service—not minimum. You'll appreciate the thoroughly strong construction of a Hayward—based on over 40 years of bucket building experience. Rugged throughout—from center casting to biting edge. Replaceable steel shoes. Bearings and bushings to protect all wearing surfaces—renewable right on the job. Interchangeable parts. Pressure lubrication on practically all types.

Catalog 43 will tell you more about the dependability features of Hayward Buckets—replete with photographs. Write for it.

THE HAYWARD COMPANY
50-52 Church Street, New York, N. Y.

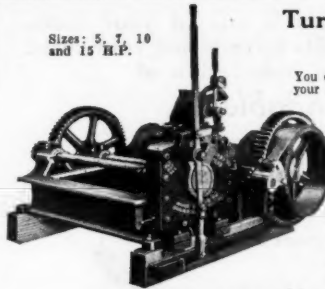
Clam Shell
Orange Peel



Drag Scraper
Electric Motor

Trade HAYCO Mark
2837-Y

Sizes: 5, 7, 10
and 15 H.P.



Turn Waste Minutes Into Money

You can save time, labor and fuel on your derrick work by installing

DAKE SWINGING GEARS

One lever starts, stops and reverses it, and when the throttle is closed the brake is automatically applied to the drum.

The boom is always under perfect control, and the load may be quickly and accurately spotted.

Swinging the boom without the use of the main hoisting engine saves fuel.

Send for catalog and full particulars.

DAKE ENGINE COMPANY, GRAND HAVEN, MICHIGAN

Agents—New York: A. Judson Brown & Co., Inc., 59 Pearl St. Chicago: J. E. Chisholm, 810 Monadnock Bldg. St. Louis: Wm. C. Johnson & Sons Machinery Co. San Francisco: Harrow, Richard & McCone.

BAY CITY MOTOR CRANE
TRACTION ENGINES OR CRAWLER TRUCKS
GASOLINE ENGINE OR ELECTRIC MOTOR
STEEL CABLES OR OTHER ATTACHMENTS



CRANES EXCAVATORS LAND DREDGES

Walking, Track, Crawler
and Floating Type

BAY CITY DREDGE WORKS

2600 Center Ave.

BAY CITY, MICH.



AIR COMPRESSORS CENTRIFUGAL PUMPS

Literature on Request

Pennsylvania Pump & Compressor Company
EASTON, PENNA.



PHILADELPHIA, PA.

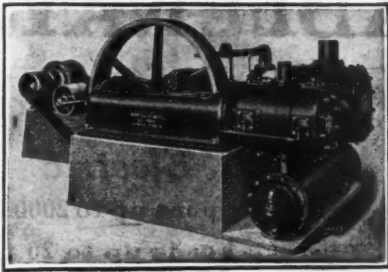


Get the
Catalog

A FLORY HOIST FOR EVERY PURPOSE S. FLORY MFG. CO., BANGOR, PA.

95 Liberty St., New York
Monadnock Block, Chicago, Ill.
Chas. T. Lehman, Birmingham, Ala.
Farquhar Machinery Co., Jacksonville Fla.
Banks Supply Co., Huntington, W. Va.
House Bldg. - Pittsburgh





Compressor Efficiency at Full and Partial Loads

Type "XCB" Air Compressors are equipped with the 5-step Clearance Control, which automatically causes the compressor to operate at full, three-quarter, one-half, one-quarter or no load, depending upon the demand for air.

This compressor, can be big enough to deliver the large volume needed during rush periods, without sacrificing efficiency when the demand is lessened.

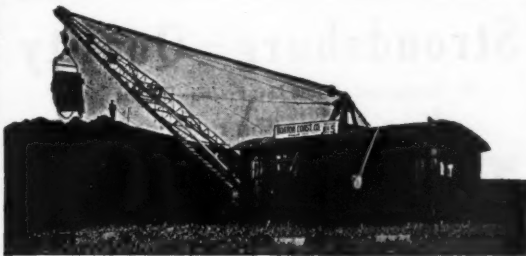
Bulletin 3042

Ingersoll-Rand

11 Broadway, New York

626-C

If It's Compressed Air Consult Us



2-3 yard Walking Draglines on Levee Work in Texas

The Walking Traction

A feature exclusive to Monighan Excavators which the contractor must see in action but once to appreciate.

Over any ground—soft, muddy or rough, it "walks" the excavator without planks, skids, track or trackmen.

Labor cost is cut, more material handled and the whole job speeded up.

Catalog No. 17 explains these advantages in detail. With it we will send you the name of the user nearest you if you wish it.

MONIGHAN MACHINE CO.

2024 CARROLL AVE.

Chicago, Ill.



BUYING A BUCKET

You don't buy a bucket for what it will do the first day—You buy a bucket for what it will do the first year.

A good bucket has more to it than proper shape and closing power—it must have "guts," an inelegant term, but the one that most strongly pictures the reason why Haiss Buckets have the call.

You may never have compared the weight of the plate in bucket bowls. You may never have compared the value of the "clear around" Haiss cutting shoe with other construction, or the cast-steel blade arms and bowl braces—the man who uses Haiss Buckets may not have studied out the "why" of it, but he knows that they do deliver the goods; they stay on the job.

We publish a Bulletin (No. 719) that tells you all about Haiss Bucket Design—we don't want to stop to tell you here. We want to say to you that a **HAISS BUCKET** will do more work than other buckets of similar capacity—and that we stand ready to prove it.

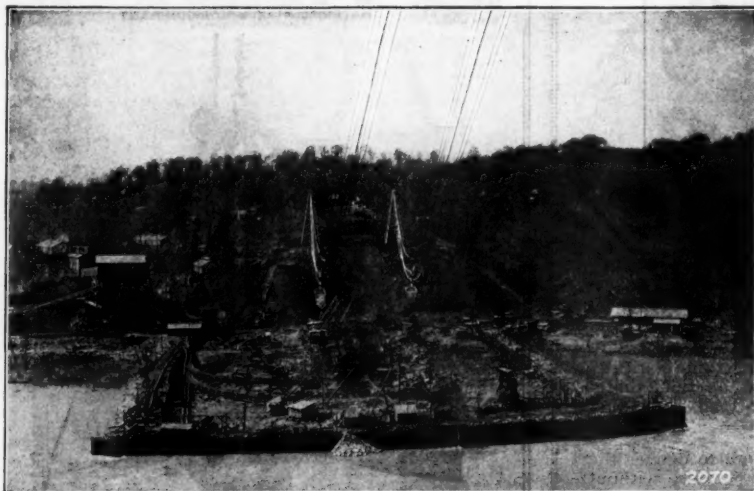
Are you Interested in Clamshell Buckets that do more work?

The George Haiss Mfg. Company, Inc.
139th St. and Canal Place, New York, N. Y.

ESTABLISHED 1892



LIDGERWOOD CABLEWAYS



Two Lidgerwood Cableways used by The Dixie Construction Co., building hydro-electric dam at Verbena, Ala., for the Alabama Power Co.

**Steam
and
Electric**

Spans up to 2000 feet

Loads up to 20 tons

Handle plain or automatic dumping skips, concrete tubs, forms, grab excavating buckets.

Have proven their value in building dams, locks, bridges, filtration plants, quarries, open pit mining and coal storage.

They perform every duty of long span overhead cranes

HOISTS

CABLEWAYS

DERRICKS

Catalog upon request

LIDGERWOOD MANUFACTURING COMPANY

96 Liberty Street, New York

Chicago

Pittsburgh

London, England

Philadelphia

Cleveland

Sao Paulo, Brazil

Detroit

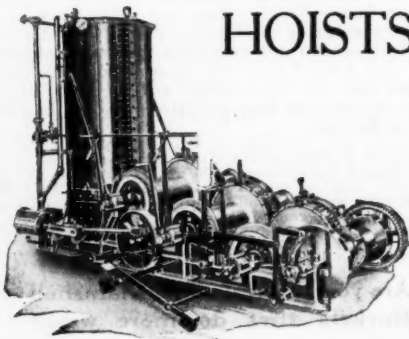
San Francisco

Apartado 812, Mexico, D. F.

Los Angeles

TRADE MARK
MUNDY
ESTABLISHED 1869

HOISTS



IDEAL hoist for use in connection with a guy or stiff leg derrick for handling a clam shell bucket. The Mundy patented swinging drum, built with this machine, swings the boom.

WRITE FOR BULLETIN

J. S. MUNDY HOISTING ENGINE CO.
NEWARK, NEW JERSEY

Stroudsburg = Quality

We Standardized the 125 Lbs. Pressure Hoisting Engine

**YOU CAN DEPEND ON A
STROUDSBURG**

When you put a Stroudsburg Hoisting Engine on the job, you can feel certain that the job will be done faster and without the usual "break-down" and "tie-up" for repairs, necessary with many other Engines.

"Built for the Man
That Wants the Best"
Built for every purpose

The
Up-to-Date
Contractor's
Favorite



STROUDSBURG ENGINE WORKS

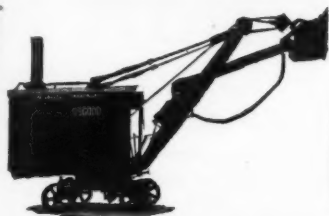
Office and Works: No. 64 N. 3d St., Stroudsburg, Pa.

Lan
lub
duc
Ship
for
inst
and
and

Gear
of s
teet

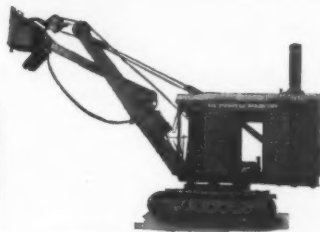
Cro
cast
engi
acc
Cro
adj

Com
man
with
quic
adj



OSGOOD

STEAM SHOVELS



BOOM ENGINE AND SHIPPER SHAFT

Revolving Steam Shovels

Large grease cups insure well lubricated bearings and reduce wear to a minimum.

Shipper Shaft squared for gears and pinions insuring a positive drive and eliminating the use and shearing of keys.

Two gears and two pinions deliver the power to the dipper handle and equalize the load on shafting and bearings.

Dipper handle racking and pinions of manganese steel. Racking made in one piece to obtain better fastening to handle.

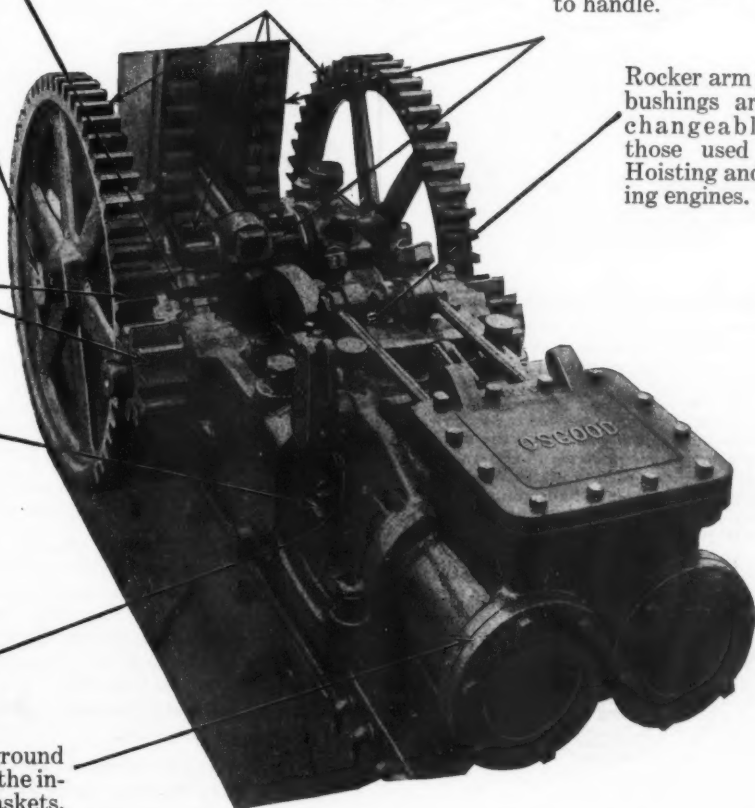
Rocker arm pins and bushings are interchangeable with those used on the Hoisting and Swinging engines.

Gears and pinions of steel and cut teeth.

Crosshead guides cast integral with engine beds and accurately bored. Crosshead shoes adjustable.

Connecting rods of manganese bronze with wedge ends for quick and accurate adjustment.

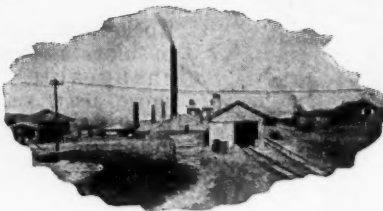
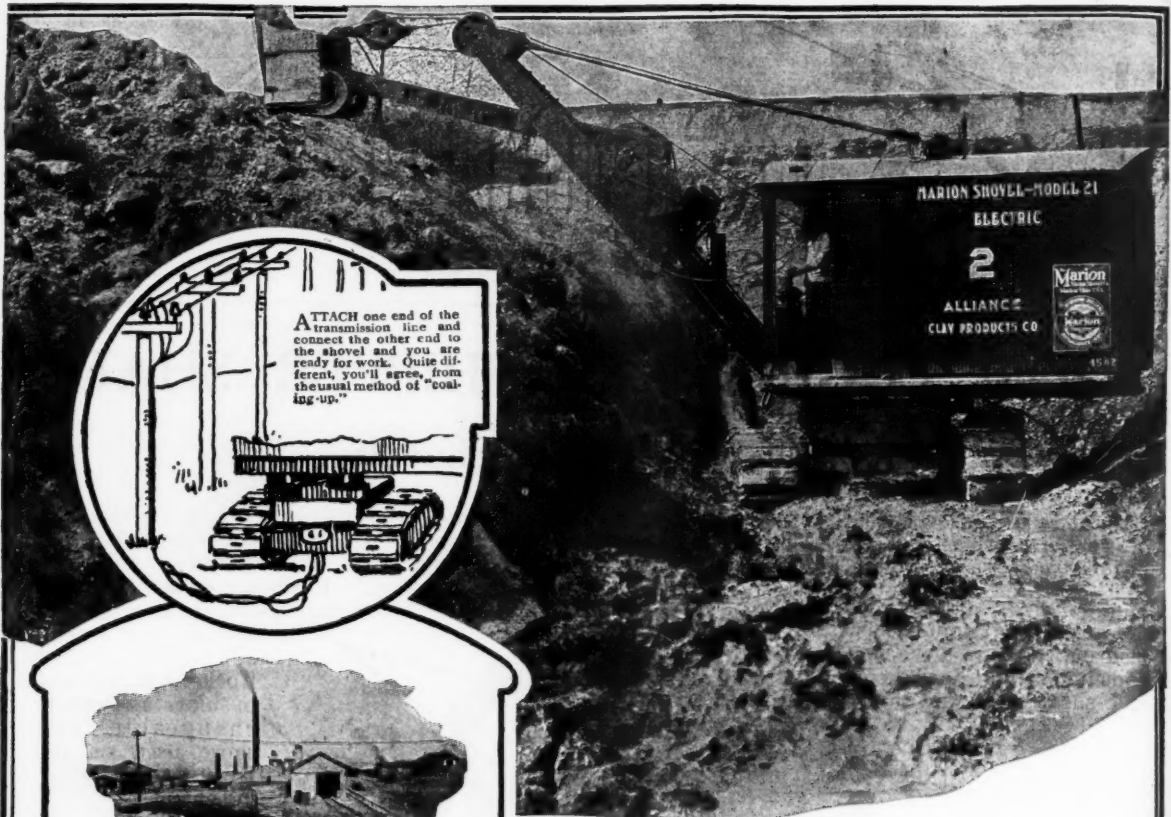
Cylinder heads ground joint eliminating the inconvenience of gaskets.



All Parts of the Boom and Swinging Engines are Interchangeable

The OSGOOD Company

Marion, Ohio, U. S. A.



A Most Satisfactory Piece of Equipment

"We wish to express the satisfaction that we are having in operating your Model 21 three motor electric shovel mounted on caterpillar tractor. We have been operating this shovel now for six weeks under the most trying circumstances in places so soft that the axles would shove the dirt in front of them. We have also been able to run it up grades of from 25 to 30%. It is certainly one of the most satisfactory pieces of equipment that we have had in our thirteen years of brick experience."

Alliance Clay Product Co.,
J. B. Wilson, Manager.



Where Fuel is Expensive or Difficult to Handle

Get a Shovel that "Takes Power from the Line"

There are many places where fuel is the most troublesome of all problems to solve. For instance—in wet, muddy cuts like the one shown above, and in mines, quarries or pits.

*It is here that the new Marion Electric
is the right shovel to buy.*

You can use this shovel, and use it profitably, wherever electric current is available—either A. C. or D. C. More and more this is becoming an age of electricity, and the new Marion Electric brings the efficiency of electric operation into mechanical shoveling. Consider the convenience, and then figure for yourself the saving in daily cost. One man runs the shovel, no team is required handling fuel and water, no stopping to "coal up," no waiting on steam, none of the fuel problems so common on many jobs.

Before you buy your next shovel it will pay you to investigate this new Marion. If you haven't a copy of our Bulletin 301, illustrating and describing this new machine, just write and we'll send one promptly.

249



The Marion Steam Shovel Company

Marion Ohio.

Marion Crawler Trucks Make Hard Going Easy

This
Power
shovel
works
clay
for s
20 1/2
As a
42-fo
1/2-ya
clams



B
Establishe
Railroad
Dig
BUCK
NEW YO
437

A NEW SMALL SHOVEL LINE

A BUCYRUS for Every Job

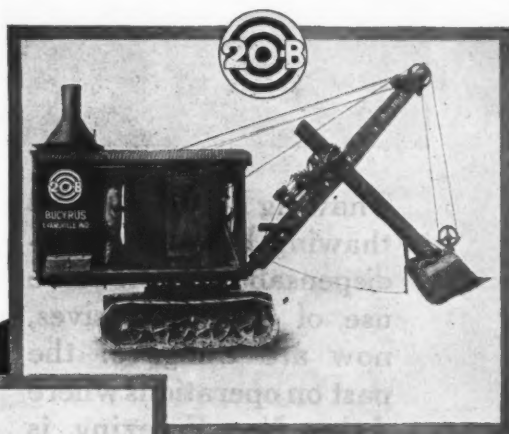
Each is a true universal shovel in every sense of the word. Quickly and easily convertible into a dragline, clamshell excavator, or

crane, or with longer booms for high lifts and sewer excavation. The 20-30-50-B line represents all that is most up to date in the design of excavating machinery, based upon 42 years of experience.

BUCYRUS 20-B "BULLSEYE"

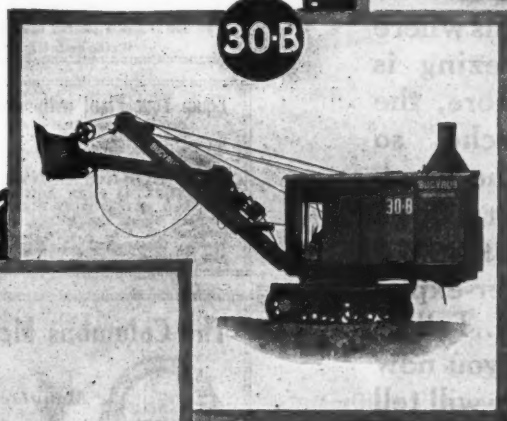
This is the very latest machine in the 3/4-yard class.

Powerful, strong, snappy and yet light. The best all-round shovel for road, street, basement and general excavation work, sand and gravel pits, clay plants, etc. Equipped for shovel work with 18, 20 1/2 or 22 1/2-foot booms. As a dragline with 35 and 42-foot booms with 3/4 and 1 1/2-yard buckets. Also for clamshell and crane service.



BUCYRUS 30-B

In the intermediate class this machine leads the field. As a shovel, equipped with various lengths of booms adapting it to a broad range of work. As a dragline, with 35, 40 and 50-foot booms with 3/4, 1 and 1 1/2-yard buckets.



BUCYRUS 50-B

The most rugged and powerful revolving shovel of the heavier class built. It is equipped with a variety of combinations of booms and dippers, viz: 1 1/4 to 2-cubic yard dippers, 26, 30 and 33-foot booms. The only shovel of this class with a locomotive boiler.



BUCYRUS

Established in 1880

A Special Plant Devoted Exclusively to Small Revolving Shovels

Railroad Type and Revolving Shovels of All Sizes, Dragline Excavators, Trench Excavators, Dipper, Hydraulic and Placer Dredges, Spreader Plows, Wrecking Cranes, Etc.

BUCYRUS COMPANY, SOUTH MILWAUKEE, WIS.

NEW YORK CHICAGO BIRMINGHAM SAN FRANCISCO PORTLAND DENVER

437

Clip this Coupon and Mail to Nearest Office

BUCYRUS COMPANY.

Please send me literature on your machine which I have marked with an (X)

Date ☐ 20-B ☐ 30-B ☐ 50-B

Name _____ Address _____

ATLAS EXPLOSIVES

USED ON BIG JOBS EVERYWHERE



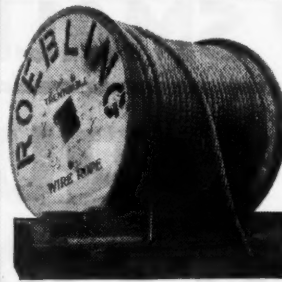
Thawing kettles and the thawing house, once indispensable factors in the use of high explosives, now are things of the past on operations where Atlas Non-Freezing is used. Furthermore, the "powder headache," so common with the handling of ordinary high explosives, is UNKNOWN where this super-explosive is employed. Tell us what explosive you now are using and we will tell you what grade of Atlas Non-Freezing will do YOUR work.

ATLAS POWDER COMPANY WILMINGTON, DEL.

Branch Offices: — Allentown, Pa.; Birmingham, Ala.; Boston; Chicago; Houghton, Mich.; Joplin, Mo.; Kansas City; Knoxville; McAlester, Okla.; Mexico City, Mexico; New Orleans; New York; Philadelphia; Pittsburg, Kans.; Pittsburgh, Pa.; Pottsville, Pa.; St. Louis; Wilkes-Barre.



A PROPER EXPLOSIVE FOR EVERY BLASTING REQUIREMENT



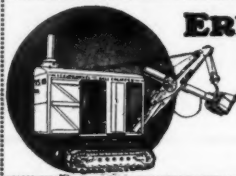
Wire Rope and Wire

Used Successfully
Since 1840

John A. Roebling's Sons Company
TRENTON, N. J.

BRANCHES:

New York Boston Chicago Philadelphia Pittsburgh Cleveland
Atlanta San Francisco Los Angeles Seattle Portland, Ore.



ERIE Steam Shovels

For road grading; handling road materials with clamshell bucket; cellar and trench excavation; excavating sand and gravel, etc. We will be glad to send photos and data, showing just what the ERIE Shovel is doing on these classes of work.

Write for Bulletin "R"

ERIE STEAM SHOVEL CO.,
Formerly Ball Engine Co., Erie, Pa., U. S. A.
Builders of ERIE Shovels and Cranes

Road Rollers, Road Machinery, Culverts and Supplies

THE GALION IRON WORKS & MFG. CO.

GALION, OHIO

ROAD BUILDING EQUIPMENT FOR EVERY REQUIREMENT
OF CONTRACTOR AND ROAD BUILDER

WHAT DO YOU NEED?

We want to furnish you Full Information on any Equipment in which you are interested
Write or telegraph for Catalogue and Prices

Equip Your Plant with Robins Material Handling Machinery

Belt Conveyors, Belt and Bucket Elevators, Crushers for Coal and Coke, Rotary Grizzlies, Bin Gates, and many other types of material handling equipment. Write for Handbook of Conveyor Practice.

ROBINS CONVEYING BELT COMPANY

NEW YORK, 14 PARK ROW BOSTON, 70 KILBY ST.
CHICAGO, OLD COLONY BLDG. PITTSBURGH, UNION ARCADE BLDG.
El Paso, Texas.....349 First National Bank Bldg.
Birmingham, Ala.....C. B. Davis Engineering Co.
Toronto, Ontario.....Gutta Percha & Rubber, Ltd.
San Francisco.....The Griffin Company

The Columbus McKinnon Chain Company

Columbus, Ohio



Manufacturers of all kinds of Chain

Southern Offices:

311 Wells Fargo Bldg., New Orleans, La.
Box 158, Jacksonville, Fla. Southwestern Life Bldg., Dallas, Tex.



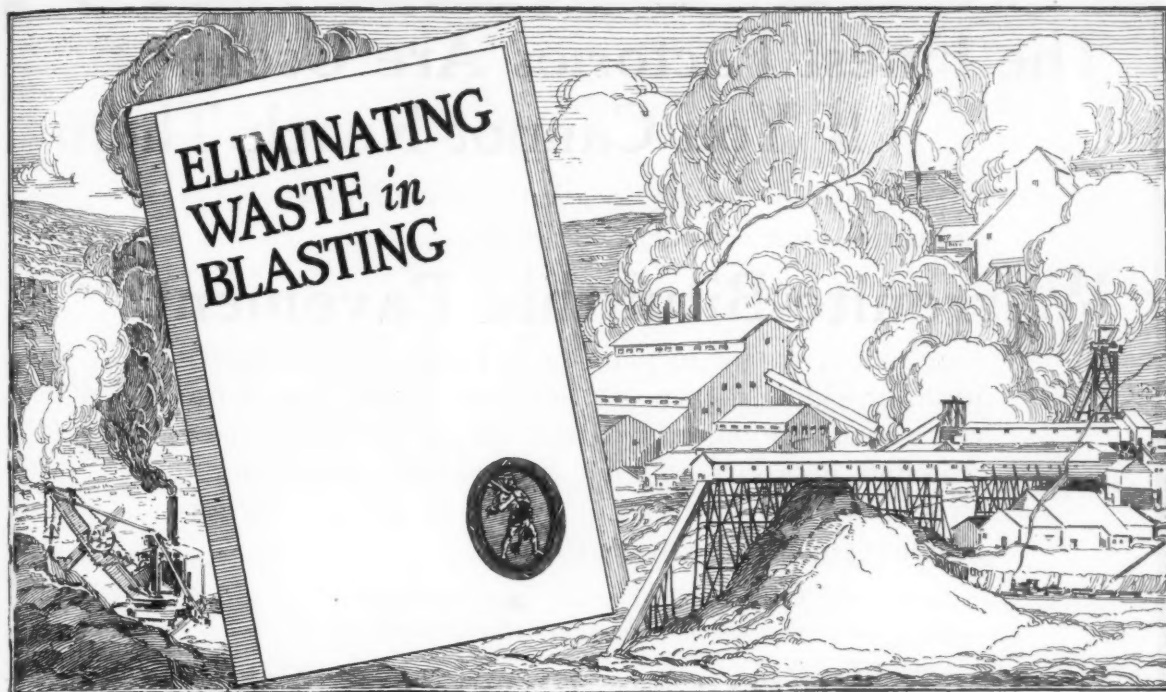
WOOD DRILL WORKS

Paterson, N. J.

ROCK DRILLS
ALL SIZES

and

for all purposes
WRITE FOR PRICES



Eliminating Waste in Blasting

The preparation and execution of careful plans for all drilling and blasting operations is a positive, well-defined and unescapable responsibility upon management in the industries that consume explosives.

Our book, "Eliminating Waste in Blasting", was written to assist users of explosives in preventing waste of time, labor, and materials. It contains chapters on Planning the Work; Drilling; Choice of Explosives; Distribution of Explosives; Advantages of No. 8 Blasting Caps; Increasing Efficiency by Use of Stemming; Preventing Waste in Firing with Fuse and Caps, and in Firing by Electricity; and on the advantages of Cordeau. It describes methods by which

some contracting, quarrying and mining companies have prevented waste and reduced costs.

In the industries investigated by the Committee of the Federated American Engineering Societies, appointed by Herbert Hoover, management is held responsible for 50% of the waste. We are doing all we can to assist management in preventing waste in the use of explosives. You can help by telling us of ways in which you have reduced your drilling and blasting costs.

Write to our advertising department, 947 King Street, Wilmington, Delaware, for a free copy of our book, "Eliminating Waste in Blasting".

HERCULES

POWDER COMPANY

Allentown, Pa.
Birmingham, Ala.
Buffalo, N. Y.
Chattanooga, Tenn.

Chicago, Ill.
Denver, Colo.
Duluth, Minn.

Hazleton, Pa.
Huntington, W. Va.
Joplin, Mo.
Los Angeles, Cal.



Louisville, Ky.
New York City
Norristown, Pa.
Pittsburg, Kan.

Pittsburgh, Pa.
Pottsville, Pa.
St. Louis, Mo.

Salt Lake City, Utah
San Francisco, Cal.
Wilkesbarre, Pa.
Wilmington, Del.

The Finest Factories Are Useless If You Cannot Reach Them

Manufacturers seeking locations; communities seeking industries, must consider good roads.

Warrenite-Bitulithic Pavement

City to city—plant to plant—this pavement has proved ideal, providing the smooth, resilient surface essential to easy transportation, and yet embodying the rugged construction necessary to long life without deterioration. Proved by years of service, it is ready to give you the satisfaction you demand of your roads.

*Our interesting booklets will tell
you surprising facts about roads.*

WARREN BROTHERS COMPANY

**EXECUTIVE OFFICES:
BOSTON, MASS.**

New York, N. Y.
Minneapolis, Minn.
Winnipeg, Man.

Vancouver, B. C.
Los Angeles, Cal.
Richmond, Va.

DISTRICT OFFICES:
Utica, N. Y.
St. Louis, Mo.
Washington, D. C.

Memphis, Tenn.
Phoenix, Ariz.
Harrisburg, Pa.

Portland, Ore.
Oakland, Cal.
Toronto, Ont.

Chicago, Ill.
New Orleans, La.
Dallas, Texas.

Experience is a Wise Old Guy

He is also our best teacher. We have been in close contact with him in the conduct of the

PRINTING BUSINESS

for more than four decades, and have tried to keep our perceptive faculties wide open and well oiled. We claim to have learned this business, and to be able to put what you have to say for yourself before the public in the most attractive form.

Try us out on this line.

FLEET-McGINLEY COMPANY, Printers
South and Water Streets, Baltimore, Maryland

WE GIVE SERVICE

PENNSYLVANIA



Texaco Asphaltic Concrete on Lackawanna Trail, Pennsylvania State Highway System. Laid in 1919.

Coal!
Iron!
Steel!

These are the names of great staple commodities which we associate with the State of Pennsylvania.

The names of these products alone convey an atmosphere of solidity and strength. They make us visualize enormous furnaces, great mills, mammoth mines. And if we go a step further, we visualize enormous transportation systems made necessary to ship the huge quantities of coal, iron products and steel which Pennsylvania sends forth each year.

A N D



Texaco Sheet Asphalt on Route 82. Work done by Smith Construction Company. (Blast furnace slag used in concrete foundation.)

Pennsylvania has had to provide durable highways not alone leading from great cities like Philadelphia, Pittsburgh, and others, but has had to provide outlets by roadway from the great mining and industrial centers.

TEXACO Asphalt highways have formed an important link in the chain necessary to complete Pennsylvania's road system. TEXACO Asphalt pavements on the great Lackawanna Trail and other main routes speak for themselves in excellence and durability.

TEXACO



The Texas Company

Asphalt Sales Dept., 17 Battery Pl., New York City



New York
Philadelphia

Richmond
Boston

Jacksonville
Atlanta

New Orleans
Memphis

Chicago
Cleveland

Oklahoma City
Kansas City

Houston
Minneapolis

Dallas

Fireproof Public Buildings Conserve Public Funds

The best insurance against fire loss is the construction of fireproof buildings. Millions of dollars are spent every year to erect public buildings. This expenditure should be made on the basis of giving value and ultimate economy. Buildings of concrete, which combine permanency, economy and safety make a sound investment of public funds and are always a constant source of satisfaction and pride to the community.

The illustration below is of the Savannah Public Library, Savannah, Ga., designed by H. W. Witcover, architect, and erected by A. A. Artley & Son, contractors, both of Savannah.



CLINCHFIELD

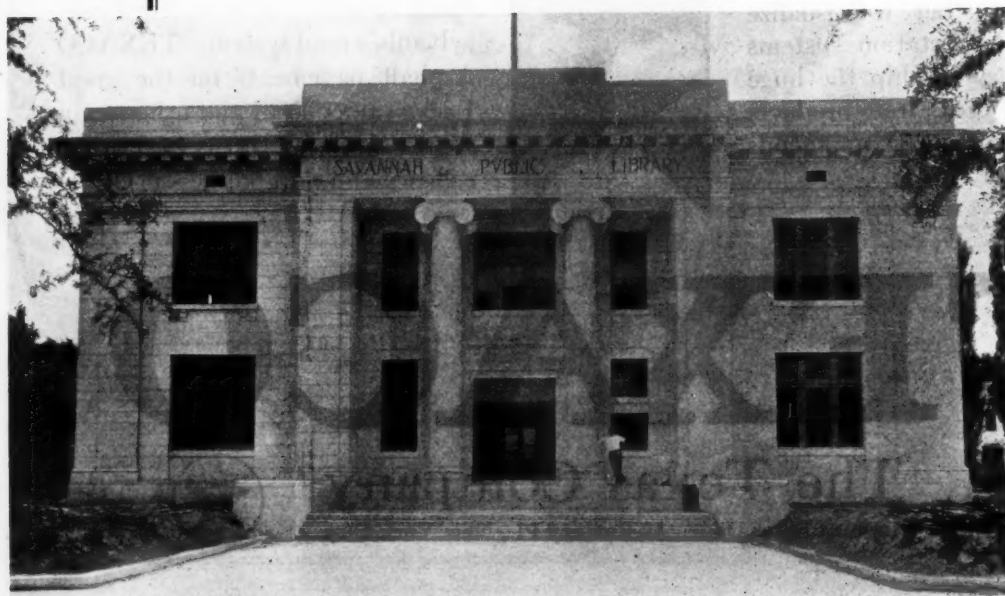
Portland Cement

was used exclusively and was furnished by Chapman-Clark Company, Clinchfield dealer at Savannah, Ga.

Further information about the advantages of concrete for permanent and fireproof construction will be gladly furnished.

Clinchfield Portland Cement Corp.

Office and Mills: Kingsport, Tenn.



COPPER FURNACE SLAG

**COARSE AGGREGATE & SCREENINGS:—A HARD MATERIAL
FREE OF DUST—WILL STAND UP UNDER GREAT WEAR
SLAG SAND:—AN ABSOLUTELY CLEAN "ALL-SAND" MATERIAL**

IRON 37%

PROMPT SHIPMENTS

FOR:—

CONCRETE
ROAD BUILDING
RAILROAD BALLAST
CEMENT GUN WORK
SAND BLASTING
ETC.

SILICA 34%

REASONABLE PRICES

TENNESSEE COPPER COMPANY
SALES OFFICE AND PLANT
COPPERHILL TENNESSEE

CRUSHED LIMESTONE Best for All Purposes

We manufacture all sizes of stone suitable for all classes of road building and concrete work where only a high-grade limestone is required.

Quarries opened up in 1912.

Capacity 4000 tons daily

Quarries:

Blue Ridge, Va. Pembroke, Va. Pounding Mill, Va.

W. W. BOXLEY & COMPANY

First National Bank Building, - ROANOKE, VA.

**Asphalt Filler
Asphaltic Roadway Gravel
Roofing Gravel**



AMERICAN LIMESTONE COMPANY
McNutt Building
KNOXVILLE, TENNESSEE

CONCRETE



PERMANENT

MR. TAX-PAYER—YOU!

Do you want your county to spend YOUR good money on roads that will wear out before your bonded indebtedness is liquidated?

I SAY YOU DON'T.

What you want is a hard-surfaced road, with little cost for maintenance—a road that can be traveled in rain or snow, summer and winter. You want a PERMANENT road—that means CONCRETE!

Write for Literature—It's Free

DIXIE PORTLAND CEMENT CO.
CHATTANOOGA, TENN.

Southern States Portland Cement



We produce only one grade

THE HIGHEST

ALWAYS UNIFORM

Southern States Portland Cement Co.

Office and Mills—ROCKMART, GA.

National Cement Company

Manufacturers of

High Grade Portland Cement

**QUALITY and
SERVICE**

Our Motto



Sales Department
Empire Building - Birmingham, Ala.
Plant
Ragland - Alabama



As Seen by the Man Who Must Have Good Roads—

He notices and appreciates the absence of cracks, the easy riding, enduring surface.

The experienced motorist has come to know that strong, elastic, ductile, electrically welded wire reinforcement renders concrete suitable for Road Work.

Clinton Electrically Welded Wire Fabric is the Ideal Mesh reinforcement for Good Roads.

Twenty years successful use has demonstrated the superior strength and economy of this wire mesh.

Write for Catalog

Wickwire Spencer Steel Corporation

General Administrative and Sales Offices

Liggett Bldg., 42nd St. and Madison Ave.

NEW YORK CITY

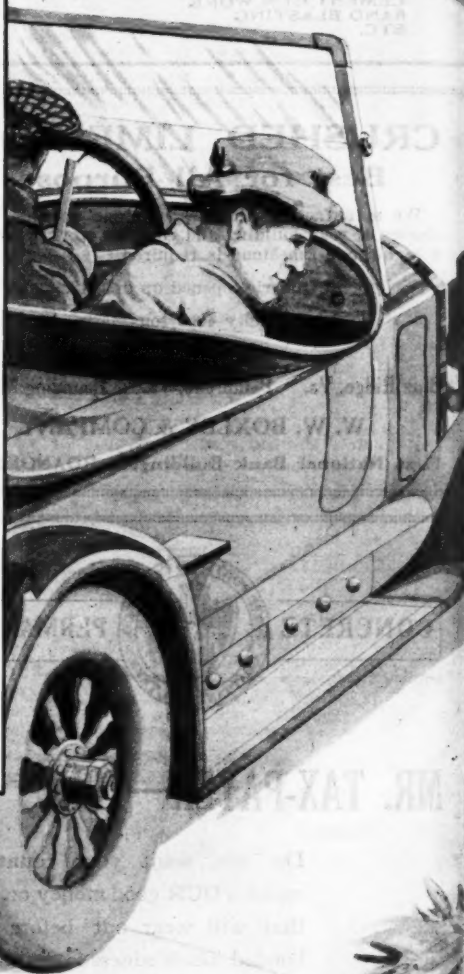
Worcester

Chicago

Buffalo

San Francisco

Detroit



Alexander
fettered in
concubine

But first
to Tyre,
are too se
the city s

But Alex
waters to
the breach

Tyre is f
stands to
the value

Roads—v
use con

ATLAS
LO



Alexander at the Walls of Tyre

Alexander dreamed—visions of kingdoms scattered underneath his hand, of princes fettered into slavery to build his palaces. And he would people them with queens for concubines, and bring the treasures of the world to sate his lust for splendor.

But first he must fight! Armies, and implements of war—and roads. So he came to Tyre, Phoenician mistress of the Mediterranean. "Our walls are too strong, we are too secure in our island fortress for even Alexander to destroy us," the elders of the city said.

But Alexander, who was called "the Great" said, "I will build a road across the waters to your walls, and when I have battered them down, march my army through the breaches."

Tyre is fallen and her glory one with Alexander's in the dust, but the great mole stands today a monument to the builder, who, fighting mostly on land, knew well the value of good roads.

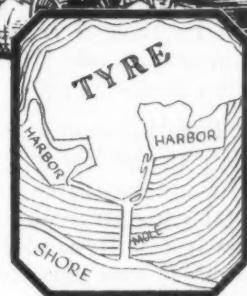
Roads—vital arteries of transportation in time of peace or war. Today engineers use concrete, and call upon the welded strength of Sir Fabric for reinforcement.

National Steel Fabric Company

(Subsidiary of Pittsburgh Steel Company)

702 Union Arcade, Pittsburgh, Pa.

ATLANTA, BUTTE, CHICAGO, CLEVELAND, DENVER, DETROIT, KANSAS CITY
LOS ANGELES, MINNEAPOLIS, NEW YORK, PHILADELPHIA, PORTLAND
ST. LOUIS, SAN ANTONIO, SAN FRANCISCO, SEATTLE, SPOKANE



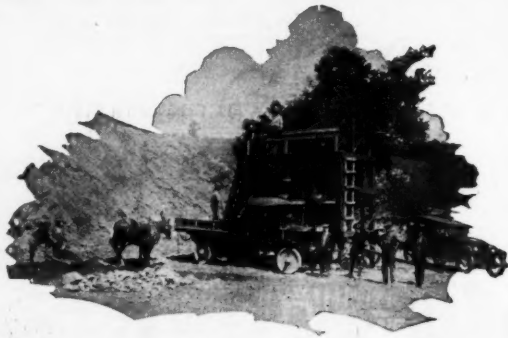
TRADE MARK

NATIONAL STEEL CO FABRIC CO

Subsidiary of PITTSBURGH STEEL CO

UNION ARCADE BUILDING

PITTSBURGH, U.S.A.



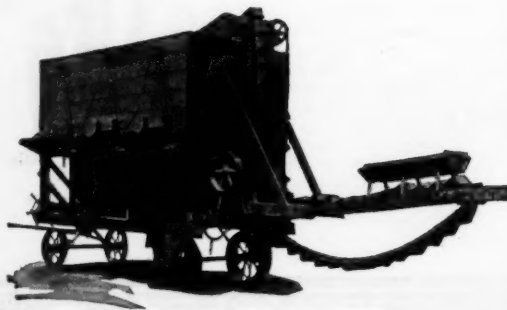
SCRATCH GRAVEL

Priorities and transportation tie-ups resulting from strikes or other causes are nothing in the life of the owner of a Western Portable Screening Plant. In addition to the load off his mind he saves time, labor and expense.

The Western Screening Plant is complete to the last detail, including power. The bin has three compartments with a total capacity of about 25 tons, and the elevator will handle up to four or five hundred tons per day. The whole outfit is most substantially constructed and yet is so designed as to be readily portable.

In localities where there are enough of the larger stones to make it pay to crush them, a Western Portable Crushing and Screening Plant just fills the bill.

Screening Plant Bulletin 21-M and Crusher Catalog 44-M will help you to solve your material problems. Write for one or both today.



**The Austin-Western Road Machinery Co.
Chicago, Ill.**

"Everything from a Drag Scraper to a Road Roller."



SAND
Bank Building Concrete Paving

WASHED GRAVEL

In Car, Scow and Barge Lots

THE ARUNDEL CORPORATION

BALTIMORE, MD.

Office: PIER 2 PRATT STREET

Wharves: PIER 2 PRATT ST., AND FOOT OF FELL ST.

SAND AND GRAVEL

Petersburg Sand & Gravel Corporation

Petersburg, Virginia

CONCRETE, BUILDING AND PAVING SANDS

Giant Portland Cement

Clean Washed Gravel in all sizes

SAND—GRAVEL—BRICK

Washed Sand for Concrete, Roads and

Buildings, Brick and Plastering

Washed Gravel All Sizes

Building Brick

Shipments: Sand and Gravel from Petersburg, Va.

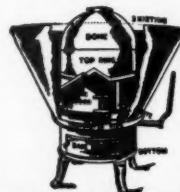
Brick from Waverly, Va.

FRIEND & CO. Inc. - River Street, Petersburg, Va.

SAND DRYERS

(With or without External Gratings)

A portable machine, daily capacity 5 to 7 tons.



For Contractors, Railroads,
Trolley Lines, Coal Com-
panies, Industrial Plants,
Foundries.

This dryer has a low first cost, is easily and cheaply operated and guaranteed dry sand.

The low cost makes it valuable for companies needing dry sand on two or more jobs at the same time, thereby eliminating the handling cost of one point only.

Write for descriptive pamphlet

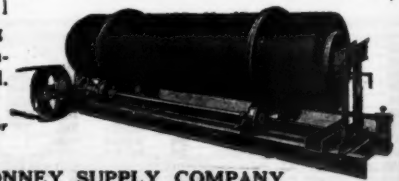
The Ripley Foundry & Machine Co.
Ripley, Ohio

RAPID SAND AND GRAVEL WASHER

LIGHT, SIMPLE AND DURABLE WASHER

Takes the dirt out of the sand and at the same time saves and makes money for you. Built of the very best materials, principal wearing parts of manganese steel.

It is good for a lifetime.

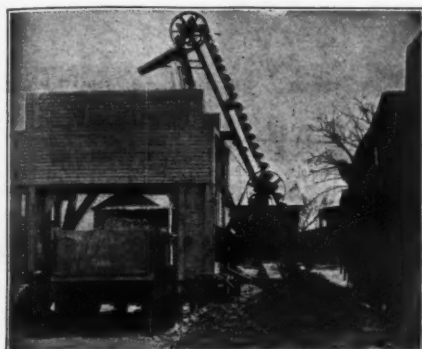


BONNEY SUPPLY COMPANY

Incorporated

114 Livingston Bldg., Rochester, N. Y.

Henry H. Meyer Co., BALTIMORE



LOAD A FIVE-TON TRUCK FOR TWENTY-FIVE CENTS

BY USING A

RELiance PORTABLE CAR UNLOADER

AND ONE MAN

CAPACITY 25 TO 35 TONS AN HOUR

BEARS THE USUAL GENEROUS RELIANCE GUARANTEE

PRICES QUOTED WILLINGLY

DELIVERIES MADE PROMPTLY

UNIVERSAL ROAD MACHINERY CO.

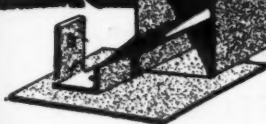
KINGSTON, N. Y.

141 MILK ST., BOSTON, MASS.

114 LIBERTY ST., NEW YORK N. Y.

Reliance Road Building-Labor Saving Equipment

HELTZEL STEEL FORMS



for concrete roads,
curbs, gutters, and
sidewalks.

Very simple: a rail,
a pedestal, a stake
—that's all. Used
by leading contrac-
tors. Catalog No.
17 is ready for you.

The Heltzel Steel Form & Iron Company Warren, Ohio

"ENSLEY" and "ALABAMA CITY" Basic Slag

BIRMINGHAM SLAG COMPANY

Birmingham, Ala.

CUMMER ASPHALT PLANTS

All Types and Sizes

THE F. D. CUMMER & SON CO.

CLEVELAND, OHIO.

Kinney

STEAM JACKETED PUMP

The Standard of efficiency
for pumping Heavy Crude
Oils, Asphalts, Tars and all
heavy viscous or bituminous
products.

No Springs

No Valves

No Air Dome

Get Our Complete Catalog.

KINNEY MANUFACTURING CO.

Boston, Mass.

New York, Philadelphia, Kansas City,
Chicago, San Francisco

Get acquainted
with the Kinney
Line for Road
Builders, Contrac-
tors, Municipal-
ities.



BUILD A ROAD THAT RESISTS BOMBARDMENT

When the mighty guns on the Western front hurled broadsides of ponderous steel projectiles the turrets and forts, regarded as impregnable, crumpled like cardboard. The result was a resort to earth trenches and embankments. Why? Because the only resistance possible was that of absorbing the shock instead of defying it. The same principle dictates shock absorbers and pneumatic tires for automobiles and trucks to protect the vehicle and its load. Our streets and roads must withstand the bombardment of more than four million truck wheels. The shock absorber in this case is the asphalt wearing course whatever the base. Asphalt,—resilient, dustless, noiseless, waterproof, wearproof,—the pavement of Broadway, Fifth Avenue, Michigan Boulevard, Broad Street, and Pennsylvania Avenue, is the last word in modern pavement design and is no more costly than a rigid unprotected pavement.

Write for Brochures, Circulars and Specifications

THE ASPHALT ASSOCIATION

25 W. FORTY-THIRD ST. NEW YORK CITY

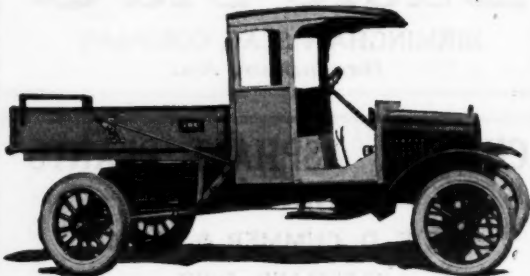
Albany, N. Y. Atlanta, Ga. Chicago, Ill.
Newark, N. J. Raleigh, N. C.

DUMP THE LOAD WITHOUT ANY STRAIN

THE JENNINGS PATENTED LEVER AND TAIL GATE are special features which put the Jennings Dump Bodies in a class to themselves. By pulling the lever forward, the body dumps; by lifting the lever the body is brought back to the loading position. The lift required is about 30 lbs. JENNINGS, the Ideal Body for Ford Trucks.

Write for prices

Jennings Automatic Dump Body, Inc.,
ROANOKE, VIRGINIA



TRAILERS for factory, warehouse and dock use with industrial tractors. Special trucks designed and built to meet individual requirements.

LUMBER HAULING EQUIPMENT—Log wagons and carts, lumber buggies, planing mill trucks and dollies. A truck for every lumber mill requirement.

TRACTION WAGONS for heavy hauling of all kinds, with bed or platform to suit requirements. 5 to 25 tons capacity. Many used in lumbering and mining.

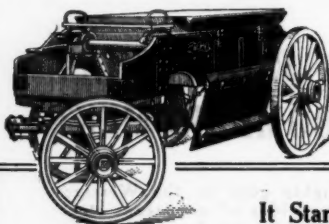
SPECIAL MACHINERY MOUNTINGS for engines, boilers, crushers, mixers and portable machinery of all kinds, designed and built to suit the requirement.

STEEL WHEELS, steel and wood axles, any size and capacity for every requirement.



*Write us fully about your hauling problem
and let us suggest the proper equipment.*

ELECTRIC WHEEL COMPANY
5 Ohio St., QUINCY, ILL.



"ACME"

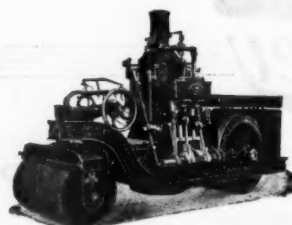
It Stands Unequalled

for strength, durability and ease of operation.
It dumps clear and clean.

Hinges are not malleable or cast iron, but are made of wrought steel.

Write for full particulars

ACME WAGON COMPANY EMIGSVILLE, PA.



"ERIE"
Tandem
Steam
Rollers

for
**STRENGTH
DURABILITY
SIMPLICITY**
and

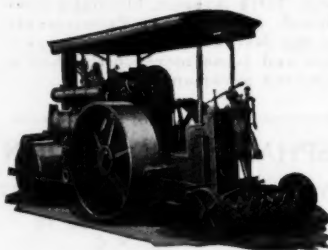
ECONOMY of OPERATION and LONG LIFE

Ask for Catalog "M"

ERIE MACHINE SHOPS

ERIE, PENNA., U. S. A.

Kelly-Springfield Rollers



ROLLER WITH SCARIFIER

FOR MORE THAN 30 YEARS OUR ROAD AND STREET ROLLERS HAVE BEEN USED BY CONTRACTORS, CITIES, COUNTIES AND GOVERNMENTS IN EVERY PART OF THE WORLD, ESPECIALLY IN THE SOUTHERN STATES.

In Addition to ALL SIZES AND STYLES—2½ TO 20 TONS

Both Steam and Gasoline

WE BUILD

SPECIAL MAINTENANCE ROLLERS

And

SPUR-GEARED TANDEMS

WRITE FOR CATALOG

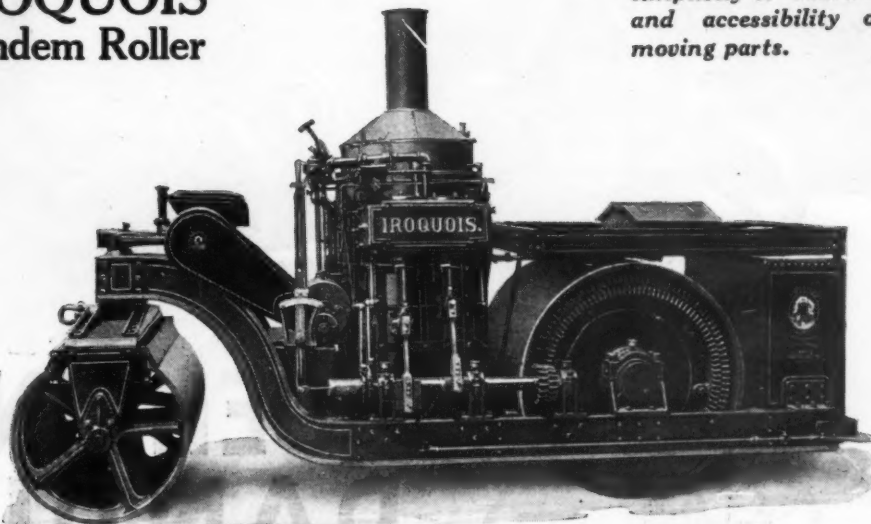
THE BUFFALO-SPRINGFIELD ROLLER COMPANY
SPRINGFIELD, OHIO, U. S. A.





IROQUOIS Tandem Roller

*ENGINE SIDE of Iroquois
Tandem Roller showing
simplicity of construction
and accessibility of all
moving parts.*



"Last word in steam rollers"

That's what the Healy Construction Company, of Dallas, Texas, says of the new Iroquois Tandem Roller, after more than 20 years' experience with other types of rollers.

This concern, which bought an Iroquois Roller six months ago, writes: "Have had no trouble of any sort with it" * * * "no roller could give better service" * * * "has a great many advantages over other rollers".

Here are the reasons for the tremendous superiority of the new Iroquois: big, slow-speed engine—instantaneous reverse—fast rolling—careful workmanship—best materials obtainable—fewer working parts than any other tandem roller—all *working parts easily accessible and easily repaired.*

The IROQUOIS Tandem Roller is made in three sizes—2½ ton, 5-ton and 8-ton. Write for detailed specifications and prices.



Trade Mark
Reg. U. S. Pat. Off.

New York
Chicago
Pittsburgh

Iroquois Sales Department

**THE BARBER ASPHALT
COMPANY**
PHILADELPHIA
St. Louis

Kansas City
San Francisco
Atlanta



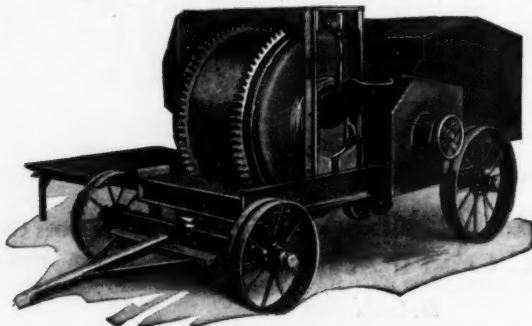
KOEHRING DANDIE MIXER

*Don't misjudge this
mixer by its price*

It sells well within the price range for light mixers—and that is just where you may think it represents about the same value to be expected in mixers at that price. No! This is a light mixer of extraordinary dependability and long service. It is built in big quantities, every part standardized. That's what keeps quality up, and price down. It is Koehring engineered and Koehring constructed, the same as the big paving mixers, and big heavy duty construction mixers. *Dependability* is the greatest thing you can buy in a mixer—and here it is as it has never been before in a light mixer. You will save yourself money on many a job, if you will write for the Dandie Catalog D-15. Write today.

Koehring Dandie Capacities

4 cu. ft. mixed concrete—gasoline. 7 cu. ft. mixed concrete—steam and gasoline. May be equipped with power charging skip, low charging platform, automatic water measuring tank, and light duty hoist.



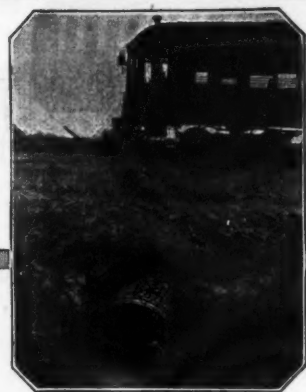
KOEHRING COMPANY
MILWAUKEE WISCONSIN

Ha
1707-1

Soll Pl
Merchan
Blackmi
Iron.

2 River St

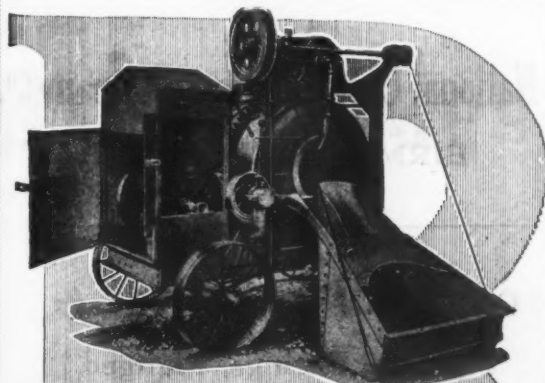




TONCAN METAL

This Toncan Metal Corrugated Culvert installed under the Toledo & Indiana Railway in 1908, is still in perfect condition. Under highways or railroads Toncan Culverts endure. They are anti-corrosive! Write nearest company for prices.

The Berger Manufacturing Co., Dallas, Texas.
Dominion Metal Products Corp., Roanoke, Va.
Florida Metal Products Co., Jacksonville, Fla.
The Canton Culvert & Silo Co., Canton, Ohio.



FASTER DISCHARGING CONCRETE MIXERS

EQUIPPED WITH HYATT ROLLER BEARINGS (Saves 17% power—70% oil)
1/2 1, 2, 3, 4, 5 BAG SIZES
GAS—STEAM—ELECTRIC

HOISTS **BOSS** MIXERS

COST NO MORE THAN ORDINARY OUT-FITS—USED BY OVER 7000 CONTRACTORS
WRITE FOR NEW PRICES AND TERMS

The American Cement Machine Co. Inc.
Keokuk, Iowa

Branch Offices and
Warehouses in
all Principal
Cities

\$285 Buys
This Half
Bag Mixer

BOSS MIXERS

BOSS HOISTS

Hammond-Byrd Iron Co.

1707-1718 American Trust Bldg., Birmingham, Ala.
1328 Peoples Gas Bldg., Chicago, Ill.

Soil Pipe and Fittings, Cast Iron Water and Gas Pipe and Fittings,
Merchant Bar Iron, Rivets, By-Product Foundry Coke, Nut Coke,
Blacksmith Coal, Shelby Charcoal Pig-Iron, Standard Alabama Pig-Iron.

SLUICE GATES

Shear, Flap and Butterfly Valves
FLEXIBLE JOINTS

COLDWELL-WILCOX COMPANY

2 River Street

NEWBURGH, N. Y.

THE SCOOP CONVEYOR

THOUSANDS IN USE

FOR STORING AND RECLAIMING,
LOADING AND UNLOADING
CARS, TRUCKS AND WAGONS

DOES THE WORK OF
FROM 6 TO 12 MEN
AND KEEPS EQUIPMENT MOVING
WRITE FOR LITERATURE

PORTABLE MACHINERY CO., PASSAIC, N.J.

Elevating and Conveying Equipment

also a full line of steel and
malleable buckets, chain and
sprockets.

THE COLUMBUS CONVEYOR CO.
Columbus, Ohio



The Tilting
Drum Gives
a Quicker,
Cleaner
Dump

THERE is really just one way
to get a batch of concrete
out of the drum into the barrow
—quickly, easily, completely.
That's to pour it out.

The Jaeger tilting drum gets
rid of a batch as quickly and
easily as emptying a bucket of
water. It doesn't dip. It tilts
and pours.—the only action
for speed and economy. And
those are the factors that spell
profit on any concrete job.

Twelve thousand contractors use
the Jaeger. They count on—and
get—A MIX A MINUTE. Con-
sider this in choosing your mixer.
For every concrete job there's
a Jaeger that exactly fills the bill.
Write for our catalog today.

The Jaeger Machine Co.
115 Dublin Avenue
Columbus, Ohio.

Jaeger
A MIX A MINUTE



National Cast Iron Pipe Company

BIRMINGHAM, ALA.

Manufacturers of

**CAST-IRON Water and Gas
Pipe and Fittings, Flanged
Pipe, Flanged Fittings, and
General Castings**

Foundries and Home Office:
Birmingham, Alabama

SALES OFFICES:

122 So. Michigan Ave., Chicago, Ill.
No. 903 Commerce Building Kansas City, Mo.

UNIVERSAL PIPE

NO PACKING NO CAULKING NO BELL HOLES

Used throughout the country for water supply,
fire protection, sewage disposal, gas lines, etc.

THE CENTRAL FOUNDRY COMPANY
New York, Chicago, Birmingham, Dallas, San Francisco

GLAMORGAN PIPE & FOUNDRY CO.

LYNCHBURG, VA.

GENERAL FOUNDERS AND MACHINISTS

Manufacturers of

CAST IRON PIPE

For Water and Gas, Flange Pipe and Fittings



**DURABLE
STRONG
AND
WILL NOT
RUST**

MICHIGAN WOOD PIPE

Specified by leading engineers everywhere. It is economical,
both in laying and upkeep. It will not rust or clog. Insist
on Michigan Pipe all the time.

Write for a copy of the Michigan Book.

MICHIGAN PIPE COMPANY
Madison Street BAY CITY, MICH.

Southern Representatives:

CHATTANOOGA, TENN.: Robt. B. Nixon Co., 702 James Bldg.
OKLAHOMA CITY, OKLA.: F. H. Loeffler, 105 W. 18th Street.



STANDARD WOOD PIPE

MORE DURABLE AND ECONOMICAL

Will furnish pipe to suit conditions

Write for catalogue for full information

STANDARD WOOD PIPE COMPANY - WILLIAMSPORT, PA.



Save 25% to 50% by using
Wyckoff Wood Pipe
instead of Cast Iron Pipe

Cheaper. Lasts as long. Delivers more water. Get catalogue
A. WYCKOFF & SON CO., ELMIRA, N. Y.

Branches: ATLANTA, GA., H. H. White, 1503 4th Nat. Bank Bldg.
SCRANTON, PA., Valley Supply Co., Coal Exch. Bldg.

CAST IRON PIPE - AND FITTINGS -

American Cast Iron Pipe Company
Birmingham, Ala.

SALES OFFICES IN PRINCIPAL CITIES

SALT
GLAZED

SEWER AND CULVERT PIPE

Wall Coping, Drain Tile, Flue Lining, Chimney Tops, Hollow
Tile, Fire Proofing, Vitrified Brick, Fire Brick

BANNON'S PATENT LIDDED PIPE FOR STEAM CONDUITS

BANNON PIPE CO.

LOUISVILLE, KY.



TAYLOR'S SPIRAL RIVETED PIPE

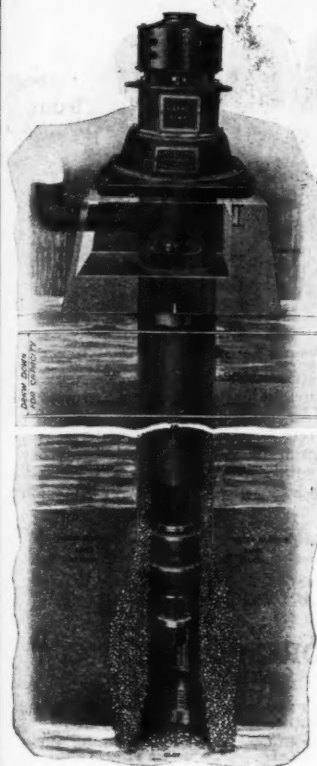
TAYLOR'S SPIRAL RIVETED PIPE is furnished with FORGED STEEL FLANGES attached.
These flanges expand evenly with the pipe, and cannot be broken by any possible condition that may
arise in the piping system.

SHEET STEEL FITTINGS are made to your special designs to meet the most unusual conditions,
eliminating heavy castings, and making the piping system wrought steel throughout.

AMERICAN SPIRAL PIPE WORKS

MAIN OFFICE AND WORKS
P. O. Box 485, Chicago

New York Office
50 Church Street



LAYNE VERTICAL TURBINE PUMPS

The Acme of Inventive Genius

The Layne Pump is conceded by pumping authorities to *represent the highest type of pump* for delivering water from wells.

It is extremely simple, there being only two mechanical working parts, both operating in an oil bath and water cooled.

Layne pumps are designed to be installed directly into well casings from 10 inches diameter and up at capacities of 200 to 5000 gallons per minute against any head desired.

We also contract to install complete well and pumping installations on a guaranteed "water-or-no-pay" plan, backed by a bond.

Hundreds of such installations show our cost per thousand gallons of water to be 20% to 60% less than systems replaced.

If you have a water problem—or think you have—write us. Send for our literature anyway.

LAYNE & BOWLER CO.

MEMPHIS - - - - - TENNESSEE



"WORLD'S LARGEST WATER DEVELOPERS"



DAVIS FOUNDRY & MACHINE WORKS

ROME, GEORGIA

Manufacturers of The Davis Turbine Water Wheel, Vertical and Horizontal, Shafting, Pulleys, Gearing, Etc.
GENERAL FOUNDRY AND MACHINE WORK

FIRE CLAY SEWER PIPE, FLUE LINERS and WALL COPING

Write for Catalogue and Discounts

Owensboro Sewer Pipe Co. Owensboro, Ky.



RIVETED STEEL PIPE

Smoke Stacks
Stand Pipes
Caissons

Storage Bins
Oil Storage Tanks
Galvanizing Kettles

and all classes of Steel Plate Construction for the Iron and Steel Industry.

THE PETROLEUM IRON WORKS CO.
SHARON, PENNSYLVANIA

New York St. Louis Houston Tampico
Tulsa Denver San Francisco

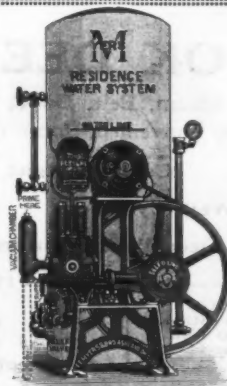
CLAY PRODUCTS OF SUPERIOR QUALITY



FOR the last Half Century we have been the largest Manufacturers in the South of Vitrified Sewer Pipe, Vitrified Highway Culvert Pipe, Segment Blocks, Hollow Tile, Septic Tanks, Flue Lining, Wall Coping, Tile Silos, Drain Tile, Chimney Tops.

Ask for free booklets and prices.

CHATTANOOGA SEWER PIPE WORKS
CHATTANOOGA, TENN.



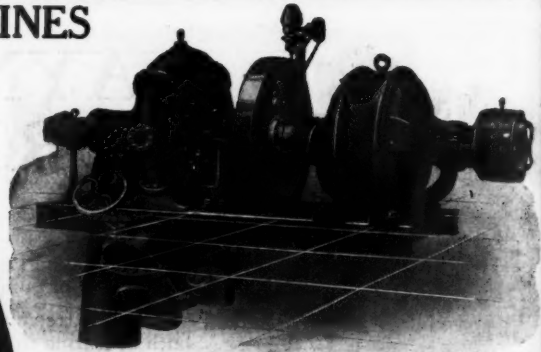
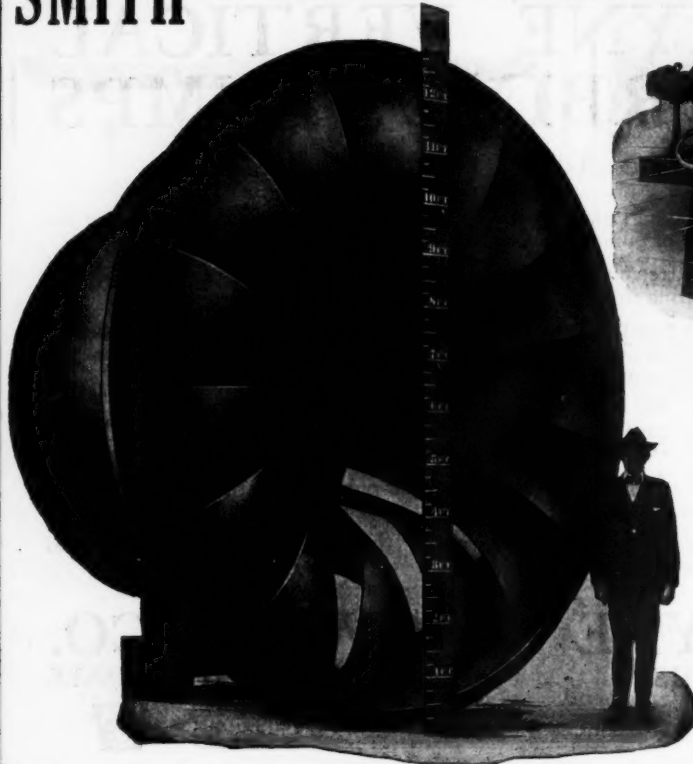
MYERS WATER SYSTEMS

Remember, when you are erecting a new home, factory buildings and similar structures that MYERS ELECTRIC, DEEP WELL and DIRECT WATER SYSTEMS, and HYDRO-PNEUMATIC PUMPS and CYLINDERS, are the result of fifty years of experience in pump building. They meet installation, power, depth and capacity requirements. All styles regardless of size, are guaranteed for economical and long time service.

Ask for a copy of our No. HP21 Catalog.

The F. E. Myers & Bro. Co.,
Ashland, Ohio.

SMITH HYDRAULIC TURBINES



Accompanying views show two extremes of hydraulic turbine units. Above is a complete hydro-electric outfit developing 275 H.P. under 170 feet head, capable of being segregated for mule-back transportation. Other view is a solid cast runner of 22,000 H.P. capacity under 82 feet head, seven of which are now being built for Southern Power Co., Charlotte, N. C.

If interested in Water Power Write Dept. "M" for Bulletin of Designs

S. MORGAN SMITH CO.
YORK, PA.

Branch 176 Federal St.
Offices: BOSTON
405 Power Bldg.
MONTREAL

76 W. Monroe St.
CHICAGO
Citizens & So. Bk. Bldg.
ATLANTA

LEFFEL TURBINE WATER WHEELS

HIGH SPEEDS, HIGH POWERS
HIGH EFFICIENCIES

A recent Test of This Type of Turbine in Place Under 21 Ft. Head developed 1200 H.P., 134 R.P.M. Efficiency

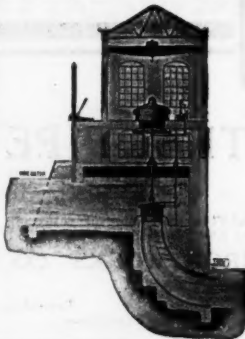
91.2%

Write For Bulletins

THE JAMES LEFFEL & CO.
SPRINGFIELD, OHIO

BRANCH OFFICES

Atlanta, Ga. - 4th Nat'l Bank Bldg.
New York, N. Y. - 39 Cortlandt St.
Boston, Mass. - 161 Devonshire St.
Minneapolis, Minn. - Plymouth Bldg.



WELL DRILLING AND DEEP WELL PUMPS

We do the engineering, and have had 25 years' experience solving water problems satisfactorily for textile mills.

SYDNOR PUMP & WELL CO., Inc., Richmond, Va.



WELLS

HUGHES SPECIALTY
WELL DRILLING CO.
CHARLESTON ATLANTA

Established 1885

COOK DEEP WELL PUMPS

For Steam, Belt, Direct Connection of Electric Motor or any other convenient form of drive, Single and Double Stroke

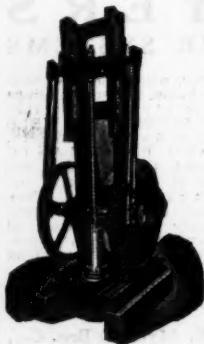
Cook's Patent Brass Tube Well Strainers

Deep Well Cylinders

Sucker Rods and Well Tools

Deep Well Pumping Systems Installed Complete

WRITE FOR CATALOGUE No. 14H

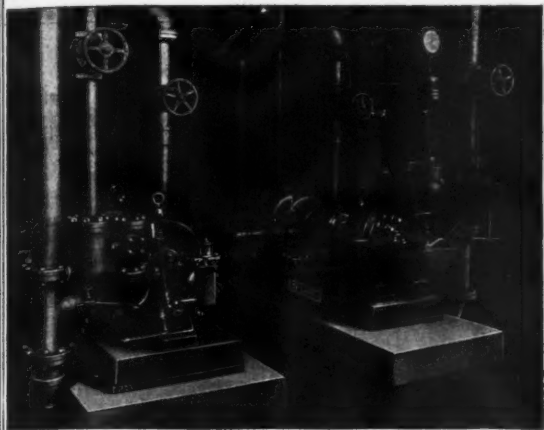


COOK
Single-Stroke
Deep Well
Power Head

A. D. COOK
Lawrenceburg Indiana

COOK
Patent
Brass Tube
Well Strainer





They Liked the First One So They Bought Another

THE photograph shows two De Laval steam-turbine-driven centrifugal boiler feed pumps, each designed to deliver 350 gal. per min., against 405 ft. head when running at 3000 r.p.m. The machine at the left is one of our older designs, but it has given entire satisfaction, with the result that when a new unit was required, a De Laval machine was purchased.

The De Laval velocity-stage turbine, as seen in the new unit, has been redesigned to adapt it to the highest steam pressures and superheats. The steel steam chest is in the upper part of the casing, away from the bearings. Some of the nozzles are controlled by hand valves so that the highest efficiency can be maintained with varying loads and steam pressures. The unit is controlled by a pressure governor, with a simple and rugged safety trip to prevent overspeeding. The pump is also of a new design, giving considerably higher efficiencies than were formerly obtained.

Ask for Catalog T91 and state your conditions so that we may send specific information.

De Laval

Steam Turbine Co.

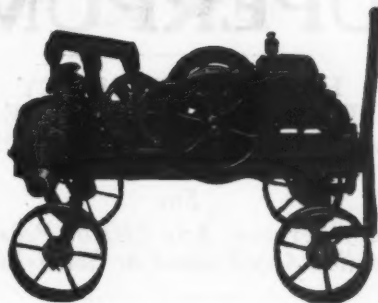
Trenton, N. J.

Local Offices: Boston, New York, Philadelphia, Pittsburgh, Cleveland, Indianapolis, Chicago, Duluth, Kansas City, Denver, Salt Lake City, Charlotte, Atlanta, Birmingham, New Orleans, Dallas, Seattle, San Francisco, Los Angeles, Montreal, Toronto, Vancouver.

206

HUMDINGER

Diaphragm Force Pumps



THE ANSWER

The answer to the Humdinger's success is in the fact that it is a Diaphragm Force Pump which combines three vital features, which are not combined in ordinary pumps.

- (a) It pumps water fifty feet above its former level.
- (b) It is a no-splash, no-puddle pump.
- (c) It renders the consistent, day-in-and-day-out service you want from a pump.

Worth looking into, isn't it? Why not right now? The Carter Line is a full line of dependable pumps.

Write for catalog "M".

RALPH B. CARTER COMPANY
152 CHAMBERS ST. NEW YORK, N. Y.

A New Air Lift Pump

SULLIVAN Air Lift Engineers have perfected a new design of displacement pump, for elevating water from shallow wells or basins, and for pumping acid or carrying it from one point in your plant to another.

The most vital innovation is the

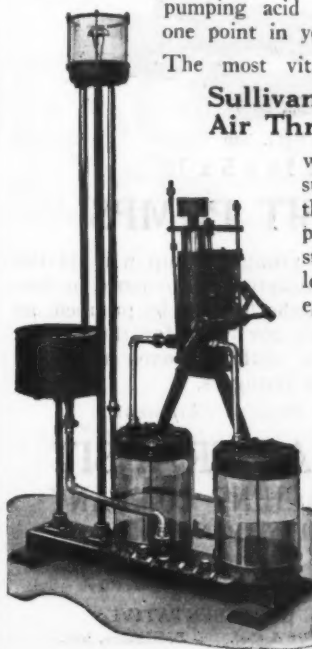
Sullivan Automatic Air Thrown Switch

which is placed at a suitable distance above the liquid pumped, and provides a uniformly steady flow from collecting tanks or acid eggs.

Positive, equal timing, no clearance losses, power and time losses obviated in overcoming inertia, are advantages of this system.

Ask for Bulletin 1271-F

Sullivan Mach'y Co.
122 So. Michigan Ave.
Chicago



ENDURINGLY EFFICIENT

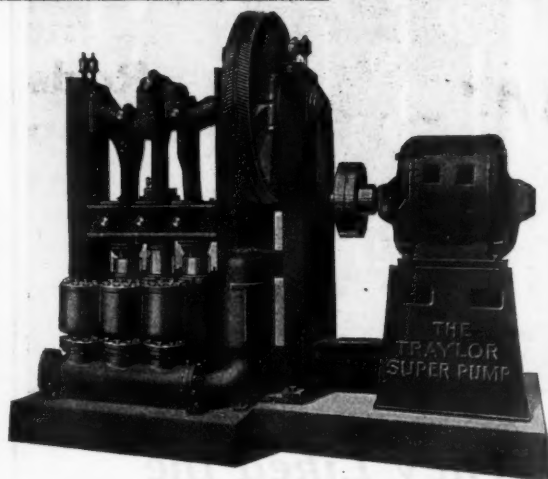
TRAYLOR SUPERPUMP

HIGHEST EFFICIENCY
LOWEST MAINTENANCE
MINIMUM OPERATION COST

For

*Every Service, Any Lift or Pressure
Handles Any Liquid or Semi-Liquid*

Triplex or Quintuplex
Horizontal, Vertical
or Sinking Types



Write our nearest office for Bulletin 101 M.

TRAYLOR ENGINEERING & MANUFACTURING COMPANY ALLENTOWN, PENNA.

NEW YORK
30 Church St.

PITTSBURGH
1133 Fulton Bldg.

CHICAGO
1414 Fisher Bldg.

LOS ANGELES
Citizens Nat. Bank Bldg.

SEATTLE
815 Alaska B'dg.

TULSA, OKLA.
505 Central Nat. Bank Bldg.

NEW ORLEANS
1215 New Hibernia Bank Bldg.

SALT LAKE CITY
111 Dooly Building

TIMMINS, ONT., CAN.
Moore Block

Truck and Tractor Division, Cornwells, Penna.

EXPORT DEPARTMENT, 104 Pearl St., New York City. Cable Address "Forsaltra"

International Machy. Co.
SANTIAGO, CHILE

W. R. Grace & Co.
LIMA, PERU

International Machy. Co.
RIO DE JANEIRO, BRAZIL

WHERE THE JOB CALLS FOR 500-1000 LBS. WORKING PRESSURE



FIG. 540
SIZE 18 x 5 x 18"

TRANSIT PUMPS

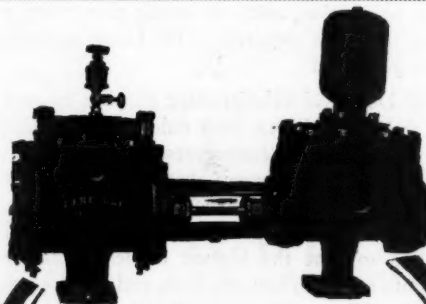
This end packed plunger pump will do the work. Especially adapted where more or less grit is contained in the fluid to be pumped, as there are no pistons nor rings for the grit to cut. Long plunger stuffing boxes minimize packing pressure on plungers.

Ready for Prompt Shipment.

NATIONAL TRANSIT PUMP & MACHINE COMPANY OIL CITY, PENNA.

DISTRICT OFFICES—New York, Philadelphia, Pittsburgh,
Cleveland, Houston, Denver and Kansas City

BALTIMORE REPRESENTATIVE
Morton Mcl. Dukehart & Co., Baltimore, Md.



J. J. Reilly Mfg. Co., Inc.

MAKERS OF THE GRAINGER PUMP
for all classes of service.

Each pump is carefully tested to
full rated capacity before shipping.
The manufacture of this pump will
be continued by us and we are pre-
pared to supply repair parts.

Grainger & Co. Incorporated

STRUCTURAL IRON WORKS

Foundry:
119 North Tenth Street

Machine Shop:
LOUISVILLE, KY.

Grainger Pumps

Minus
Cams
Rods
Pistons
Lubrication
Packing

But Never Minus A Job

All the trouble making insides that get out of order in other pumps are omitted from the pulsometer. It

HAS NO sliding parts
REQUIRES NO belting
NEEDS NO lubrication
DEMANDS NO adjusting
or attention

Just put it on the job, turn on the steam and you can feed it sticks, stones, sand or gravel, and it keeps on working just the same. Sh,—here's a secret. You don't have to buy them. You can rent or lease one, but once in your possession you will never give it up. Our greatest pleasure is in convincing the skeptical. How about it? Are you from Missouri?



PULSOMETER STEAM PUMP

PULSOMETER STEAM PUMP CO.

Executive Offices: 223 West 42nd Street, New York, N. Y.

Agencies in Following Cities:

Henry H. Meyer Company.....	110 S. Howard St., BALTIMORE
Beckwith Machinery Co.....	CHARLESTON, W. VA.
Kelly-Derby Co., Inc.....	Peoples Gas Building, CHICAGO
Beckwith Machinery Co.....	1500-02 Lakeside Ave., CLEVELAND
The K. B. Noble Company.....	248 Pearl St., HARTFORD, CONN.
J. L. Weiborn.....	HATTIESBURG, MISS.
Miller Supply Co.....	HUNTINGTON, W. VA.
H. A. Paine.....	119 Main St., HOUSTON, TEX.
Harron, Rickard & McCone.....	225 S. San Pedro St., LOS ANGELES, CAL.
Hunter Machinery Co.....	West Side of 16th St. Viaduct, MILWAUKEE
Wm. H. Ziegler Company.....	423 S. Fifth St., MINNEAPOLIS
Turner Supply Co.....	MOBILE, ALA.
F. H. Hopkins Company.....	MONTREAL
Woodward Wight & Company, Ltd.....	NEW ORLEANS
Berow Machinery Co.....	230 West 42nd St., NEW YORK CITY
Edelen & Co.....	235 Commercial Trust Bldg., PHILADELPHIA
Beckwith Machinery Co.....	108 Parkway, N. S. PITTSBURGH
Harron, Rickard & McCone.....	139 Townsend St., SAN FRANCISCO
J. A. Manion.....	Henry Bldg., SEATTLE
W. L. Sullivan.....	TULSA, OKLA.
Powell Equipment Co., Ltd.....	403 McArthur Bldg., WINNIPEG, MAN., CAN.
Harvard Turnbull & Co.....	Excelsior Life Bldg., TORONTO, CAN.

LUDLOW

Fire Hydrants



Ludlow Slide Gate Fire Hydrants are cheapest in the long run. The records they have made in our large cities where many others are in use prove that there is no other hydrant on the market with a greater efficiency and a smaller upkeep cost.

Ludlow Hydrants cannot clog. All working parts are protected from injury by gritty or cutting substances passing through the hydrant. All parts can be removed without digging up the hydrant. Gate-locking device prevents street from being flooded should the standpipe be broken.

Southern Representative:
WM. F. WILCOX
American Trust Bldg., Birmingham, Ala.

The Ludlow Valve Mfg. Co.
TROY, N. Y.

Branch Offices:
Boston New York Chicago Philadelphia Pittsburgh Kansas City

MATHEWS FIRE HYDRANTS

Mathews Compression Type Fire Hydrants were the pioneer Hydrants in the South, and today, after more than fifty years, continue to hold first place in the Water Works Field:

REASON? Correctness of design, quality of material and workmanship.

R. D. WOOD & CO. 400 CHESTNUT STREET
PHILADELPHIA, U. S. A.

COLUMBIAN IRON WORKS

CHATTANOOGA, TENN.

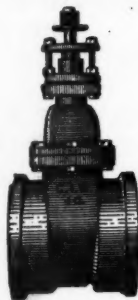
MANUFACTURERS OF

Fire Hydrants, Valves, Valve Boxes, Sluice Gates, Meter Boxes, Water-Works Supplies

ALSO MUNICIPAL AND BUILDING CASTINGS

Estimates Promptly Furnished

New Orleans Representative:
J. S. BARELLI
612 Godchaux Bldg.



MCGOWAN DUPLEX STEAM AND POWER DRIVEN PUMPS REFLECT

Good judgement in buying

THE JOHN H. MCGOWAN CO.
CINCINNATI, OHIO. U. S. A.

THE BOURBON COPPER & BRASS WORKS CO.

Manufacturers of FIRE HYDRANTS and STOP VALVES

Water Works and Fire Department
Supplies and Extension Valve Boxes
Long Distance Phone, Canal 3297
618 and 626 E. Front Street
CINCINNATI, OHIO



MORRIS Since 1864 CENTRIFUGAL PUMPS

Since 1864 Morris has been building Centrifugal Pumps, Hydraulic Dredges and Steam Engines. You can depend upon the Morris reputation.
Morris Machine Works, Baldwinsville, N. Y.
Agents in Principal Cities

EMERSON STEAM PUMPS

EMERSON FOOT VALVES AND STRAINERS

For Contractors, Mines, Quarries, Cofferdams, and all Rough and Ready Service. Immediate Deliveries

The Emerson Pump and Valve Co., Inc.
ALEXANDRIA, VA.

RoTURBo CENTRIFUGAL PUMPS

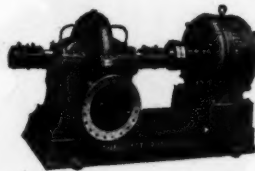
Manistee Iron Works Co., Manistee, Michigan

EARLE - CENTRIFUGAL - PUMPS



For all purposes where Centrifugal Pumps of the better class are adopted
The Earle Gear & Mach. Co.
Philadelphia, Pa., U. S. A.

Smith-Vaile Pumps



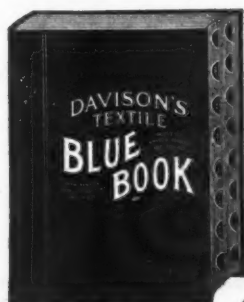
Duplex Steam—Triplex Power—Centrifugal
Platt Iron Works Dayton, Ohio

Since 1885 EFFICIENTLY SERVING
THE TEXTILE INDUSTRY

One Thousand Seven Hundred

Pages of Latest Reports and Information on Cotton Mills, Woolen Mills, Knitting Mills, Dyers, Finishers, Cotton Merchants, Waste Firms, Wool Dealers, Dry Goods Commission, Etc.

*Write, Wire or
Phone for your
copy before the
Limited Edition
is Entirely Sold
to the Trade*



35th Annual 1922
Office Size \$7.50
Handy Size \$5.00
Prepaid to any Re-
sponsible Firm

DAVISON PUBLISHING COMPANY

50 UNION SQUARE

Telephone, Stuyvesant 1195-6

NEW YORK

THE CARDWELL MACHINE CO.

RICHMOND, VA., U. S. A.

WE MANUFACTURE
A FULL LINE OF

OIL MILL MACHINERY

Cotton Seed, Linseed, Rape Seed, Olive, Peanut, Castor, Fish
and Lard Oil, Hydraulic Baling Presses, Tobacco Machinery

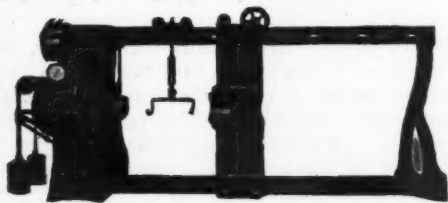
Cotton Ginning Machinery

For all requirements of Ginners and Growers, Write
to nearest Continental Sales Office for Catalog H.

CONTINENTAL GIN COMPANY

Atlanta, Ga.; Birmingham, Ala.; Dallas, Tex.;
Memphis, Tenn.

MUCH LESS EXPENSIVE THAN YOU THINK



THE CALDWELL WHEEL PRESS

THE PRICE IS RIGHT 30 SIZES THE PRESS IS RIGHT

Most Popular Press on the Market. Ask Your Dealer

E. R. Caldwell & Company, Bradford, Pa.

LOOMS

Automatic or Plain

The Crompton & Knowles Loom Works is the
largest builder of plain and fancy weaving
machinery in the world.

We make looms to weave every known woven
fabric, such as woolen, worsted, silk, gingham,
towel, duck, tire fabric, cord fabric, blanket,
tape, sisal, etc.

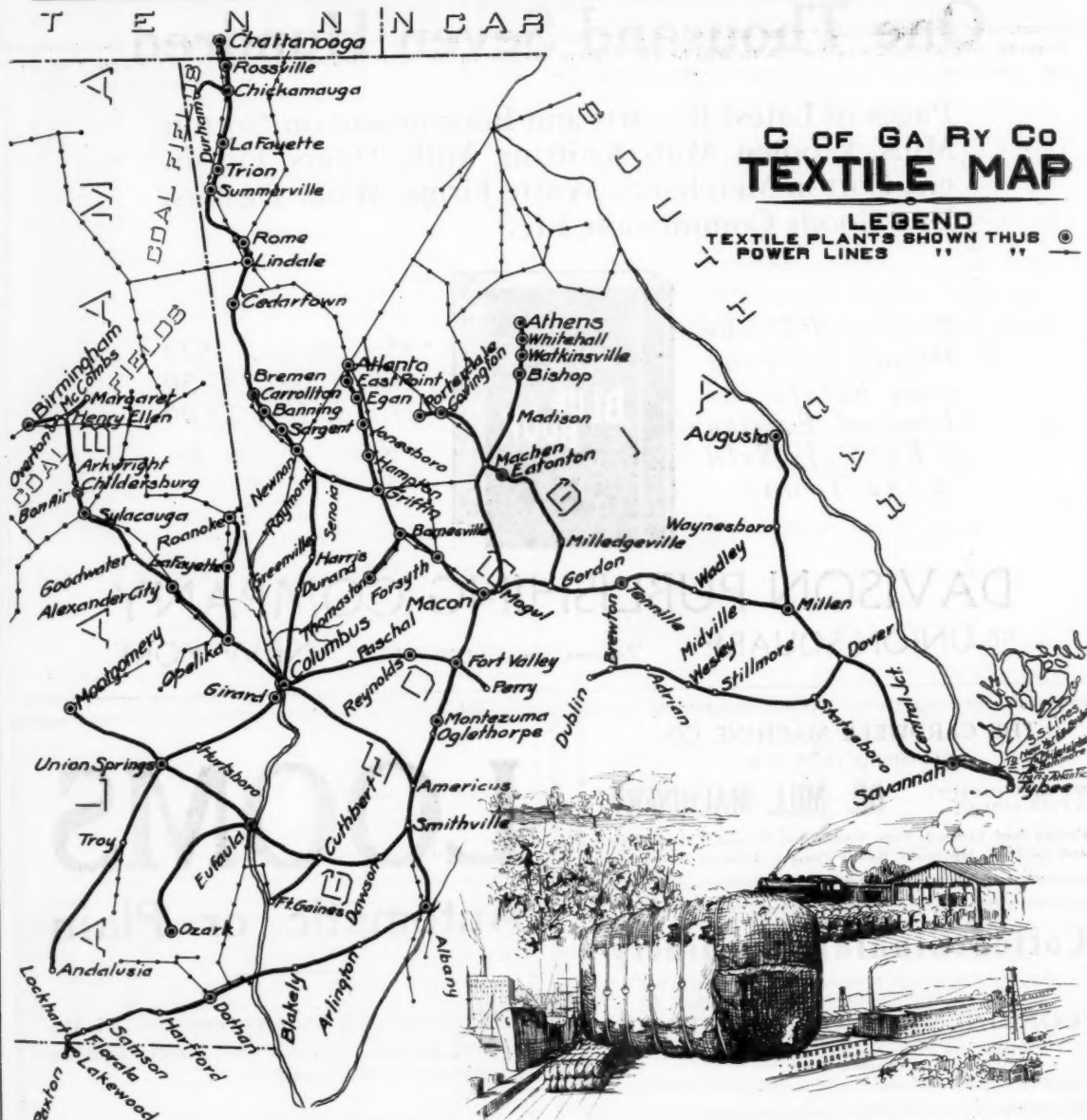
CROMPTON & KNOWLES LOOM WORKS WORCESTER, MASS.

Providence, R. I. Philadelphia, Pa. Paterson, N. J.

SOUTHERN REPRESENTATIVES:

ALEXANDER & GARSED, Charlotte, N. C.

Logical Location for Textile Industries



Georgia has 201 textile plants, of which 115 or 57% are in cities served by the Central of Georgia.

Alabama has 74 textile plants, of which 27 or 36% are in cities served by the Central of Georgia.

The fact that these are successful, going concerns is convincing evidence that they are properly located.

This territory being supplied with hydro-electric power

in ample quantity, and with nearby coal fields of Alabama and Tennessee, the question of power is fully solved.

While other essential requirements, such as labor, climate, adequate transportation and nearness to raw materials all combine to enable the Central of Georgia territory to offer those establishing new mills a location that is ideal and of proven value.

Further and detailed information will be gladly furnished upon request.

J. M. MALLORY, General Industrial Agent
CENTRAL OF GEORGIA RAILWAY
Savannah, Georgia

ABRA
Carbo
ACCO
Black
Hill,
Tadd
ACET
Kent
AGRI
Mor
AERI
Brod
Leach
AIR C
Constr
De La
Jones
burg
Genera
Ingers
Penn.
Sulliv
Westin
merit
Worth
AIR A
Penn.
AMME
Weston
AMMO
Frick
Triump
York
Vogt
ANNE
Willson
ANTI-
Bailey
Dodge
More-J
APPR
Americ
ARCHI
Foulho
Marcel
Milburn
Sirine
Turner
Draper,
Willis,
ARCHI
Starr
Wober
ARCHI
Chespe
Dietrich
Dow Co
Soed A
ARMAT
Chatt
ARMAT
Charlot
ART GI
Bivawan
ASBEST
Johns-M
ASPHAL
Asphalt
Barber
Gulf Ref
Texas Co
Robertson
Kentucky
ASPHAL
Amer. L
Texas Co
ASPHAL
Kinney
ASPHAL
Brie Mac
ASPHAL
Asphalt
Cummer
Warren B
AUCTION
Smith &
AUDITOR
Black &
Hill, Nor
Tadd &
AUTOMA
Hewley
Ya.
Grinnell C

Classified Reference Index for Buyers

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

ABRASIVE MATERIALS.

Carborundum Co., Niagara Falls, N.Y.

ACCOUNTANTS. (Certified Public.)

Black & Co., Baltimore, Md.
Hill, Norman A., Baltimore, Md.
Todd & McCullough, Charlotte, N. C.

ACETYLENE GENERATORS.

Kentucky Oxygen-Hydrogen Co., Louisville.

AGRICULTURIST. (Consulting.)

Morse Agricultural Service, New Orleans.

AERIAL TRAMWAY.

Broderick & Bascom Rope Co., St. Louis.

Leschen & Sons Rope Co., A., St. Louis.

AIR COMPRESSORS.

Stationary and Portable.

Construction Mch. Co., Waterloo, Ia.

De Laval Steam Turb. Co., Trenton, N. J.

Domestic Engine & Pump Co., Shippensburg, Pa.

General Electric Co., Schenectady, N. Y.

Ingersoll-Rand Co., New York, N. Y.

Penn. Pump & Comp. Co., Easton, Pa.

Sullivan Machinery Co., Chicago, Ill.

Westinghouse Traction Brake Co., Wilmerding, Pa.

Worthington Pump & Mch. Corp., N. Y.

AIR AND GAS COMPRESSORS.

Penn. Pump & Comp. Co., Easton, Pa.

AMMETERS.

Weston Electrical Instr. Co., Newark, N.J.

AMMONIA VALVES AND FITTINGS.

Frick Co., Waynesboro, Pa.

Triumph Ice Machine Co., Cincinnati, O.

York Mfg. Co., York, Pa.

Vogt Mch. Co., Inc., Henry, Louisville.

ANNEALING BOXES.

Wilfong Iron Wks. Co., Millard F., Phila.

ANTI-FRICTION METALS.

Bailey-Lebby Co., Charleston, S. C.

Dodge Sales & Engr. Co., Milwaukee, Ind.

More-Jones Brass & Metal Co., St. Louis.

APPRAISERS.

American Appraisal Co., Milwaukee, Wis.

ARCHITECTS.

Foulhoux, J. A., New York, N. Y.

Marcel, F. E., Atlanta, Ga.

Milburn, Heister & Co., Wash'n, D. C.

Sirrine & Co., J. E., Greenville, S. C.

Turner Architectural Service, Balt., Md.

Landscapes.

Draper, E. S., Charlotte, N. C.

Willis, W. N., Spartansburg, S. C.

ARCHITECTS' SUPPLIES.

Starrett Co., L. S., Athol, Mass.

Weber Co., Philadelphia, Pa.

ARCHITECTURAL IRON WORK.

Chesapeake Iron Works, Baltimore, Md.

Dietrich Brothers, Baltimore, Md.

Dow Co., Inc., The, Louisville, Ky.

Seoad Architectural Iron Wks., Louisville.

ARMATURE AND FIELD COILS.

Chattanooga Armature Wks., Chattanooga.

ARMATURE WINDING.

Charlotte Elec. Repair Co., Charlotte, N. C.

ART GLASS.

Binswanger & Co., Memphis, Tenn.

ASBESTOS PRODUCTS.

Johns-Manville, Inc., H. W., New York

ASPHALT.

Asphalt Association, New York, N. Y.

Barber Asphalt Co., Phila., Pa.

Gulf Refining Co., Pittsburgh, Pa.

Texas Co., The, New York, N. Y.

Process.

Robertson Co., H. H., Pittsburgh, Pa.

Kentucky Rock Asphalt Co., Louisville.

ASPHALT FILLER.

Amer. Limestone Co., Knoxville, Tenn.

Texas Co., The, New York, N. Y.

ASPHALT HEATERS.

Kinney Mfg. Co., Boston, Mass.

ASPHALT MIXERS.

Erie Machine Shops, Erie, Pa.

ASPHALT PAVING PLANTS.

Asphalt Association, New York, N. Y.

Cammer & Son Co., F. D., Cleveland, O.

Warren Bros. Co., Boston, Mass.

AUCTIONEERS.

Smith & Jaffe, New York, N. Y.

AUDITORS.

Black & Co., Baltimore, Md.

Hill, Norman A., Baltimore, Md.

Todd & McCullough, Charlotte, N. C.

AUTOMATIC FIRE SPRINKLERS.

Beverly Heating Co., R. C., Richmond, Va.

Grinnell Co., Providence, R. I.

AUTOMATIC TELEPHONE EXCHANGES

Automatic Electric Co., Chicago, Ill.

AUTOMOBILE ACCESSORIES.

Bailey-Lebby Co., Charleston, S. C.

AUTOMOBILE TIRES.

Kelly-Springfield Tire Co., New York.

AUTOMOBILE TRUCKS.

General Motors Truck Co., Pontiac, Mich.

Packard Motor Car Co., Detroit, Mich.

BABBITT METAL.

More-Jones Brass & Metal Co., St. Louis.

BACKFILERS.

Amer. Cement Mch. Co., Inc., Keokuk, Ia.

Austin Machy. Corp., Chicago, Ill.

Buckeye Traction Ditcher Co., Findlay, O.

Trensch.

Construction Machinery Co., Waterloo, Ia.

BALLAST. (Railroad.)

American Limestone Co., Knoxville, Tenn.

Birmingham Slag Co., Birmingham, Ala.

Tennessee Copper Co., Copperhill, Tenn.

BANKERS AND BROKERS.

Allyn & Co., A. C., Chicago, Ill.

Caldwell & Co., Nashville, Tenn.

Campbell & Kinsey, Toledo, O.

Electric Bond & Share Co., New York.

Halsey, Stuart & Co., Chicago, Ill.

Mercantile Trust & Deposit Co., Balto.

Miller & Co., G. L., Atlanta, Ga.

Nuveen & Co., John, Chicago, Ill.

Provident Savings Bank & Trust Co., Cincinnati, O.

Rosenstiel Co., The, Lewis S., Cincinnati.

Silverman Co., W. H., Cincinnati.

Slattery & Co., W. L., Toledo, O.

Title Guarantee & Trust Co., Cincinnati.

Wise & Co., Harold G., Houston, Texas.

BANKS.

Bank of Alabama, Ensley, Ala.

First National Bank, Richmond, Va.

Marine Bank & Trust Co., New Orleans.

Maryland Trust Co., Baltimore, Md.

BARGES. (Steel.)

American Bridge Co., New York, N. Y.

Midland Barge Co., Midland, Pa.

BAR BENDERS.

Electric Welding Co., Pittsburgh, Pa.

Koehring Co., Milwaukee, Wis.

BAR CUTTERS.

Buffalo Forge Co., Buffalo, N. Y.

Electric Welding Co., Pittsburgh, Pa.

Koehring Co., Milwaukee, Wis.

BAR IRON. (Refined and Galvanized.)

Republic Iron & Steel Co., Youngstown, O.

Chas. Held's Sons, Inc., Norfolk, Va.

BARB.

Steel, Rounds, Flats, Hexagons and Squares.

Atlanta Bolt & Steel Prod. Co., Atlanta.

Concrete Steel Co., New York, N. Y.

Ingersoll Iron Works Co., Birmingham, Ala.

Knoxville Iron Co., Knoxville, Tenn.

Laclede Steel Co., St. Louis, Mo.

Ryerson & Son, Jos. T., St. Louis and New York.

BARB. WIRE. WIRE FABRIC. STEEL Etc. (For Reinforced Concrete.)

Cincinnati Iron & Steel Co., Cincinnati, O.

Concrete Steel Co., New York, N. Y.

Jones & Laughlin Steel Co., Pittsburgh.

National Steel Fabric Co., Pittsburgh, Pa.

Oliver Iron & Steel Co., Pittsburgh, Pa.

Southern Steel Prod. Co., Richmond, Va.

Truscon Steel Co., Youngstown, O.

BARB. (Spacing for Concrete Reinforcement.)

Electric Welding Co., Pittsburgh, Pa.

BEAMS, CHANNELS AND ANGLES.

Belmont Iron Works, Philadelphia, Pa.

Carnegie Steel Co., Pittsburgh, Pa.

Cincinnati Iron & Steel Co., Cincinnati.

Ingalls Iron Works Co., Birmingham, Ala.

BEARINGS. (Car and Engine.)

More-Jones Brass & Metal Co., St. Louis.

BELTING.

Chalmers.

Caldwell & Son Co., H. W., Chicago, Ill.

Chain Belt Co., Milwaukee, Wis.

Link-Belt Co., Philadelphia, Pa.

Morse Chain Co., Ithaca, N. Y.

Leather, Canvas, Rubber.

Bailey-Lebby Co., Charleston, S. C.

Baltimore Belting Co., Balto., Md.

Chesapeake Belting Co., Baltimore, Md.

Druid Oak Belting Co., Inc., Baltimore.

Goodrich Rubber Co., B. F., Akron, O.

Goodrich Tire & Rubber Co., Akron, O.

Reed & Duescher, Memphis, Tenn.

Smith-Courtney Co., Richmond, Va.

BELT CEMENT.

De Pont de Nemours & Co., Inc., E. I. Wilmington, Del.

Reed & Duescher, Memphis, Tenn.

BELT CONVEYORS.

Chain Belt Co., Milwaukee, Wis.

Dow Co., Inc., The, Louisville, Ky.

Haise Mfg. Co., Geo., New York, N. Y.

Portable Mchry. Co., Passaic, N. J.

Robins Conveying Belt Co., New York.

BELT DRESSING.

Diamond Bubber Co., Akron, O.

Dixon Crucible Co., Jos., Jersey City.

Reed & Duescher, Memphis, Tenn.

BENCHES. (Movable Shop.)

Western Tool & Mfg. Co., Springfield, O.

BENDING ROLLS.

Covington Mach. Co., Inc., Covington, Va.

BICARBONATE SODA. (Sap Stain Lumber Dip.)

Church & Dwight Co., New York, N. Y.

BILLETS. (Basic Open Hearth.)

Pittsburgh Steel Co., Pittsburgh, Pa.

Wheeling Steel Prod. Co., Wheeling, W. Va.

BLAST-FURNACE LININGS.

Ashland Fire Brick Co., Ashland, Ky.

BLASTING ACCESSORIES.

Atlas Powder Co., Wilmington, Del.

Du Pont de Nemours & Co., Inc., E. I. Wilmington, Del.

Hercules Powder Co., Wilmington, Del.

BLASTING POWDER.

Atlas Powder Co., Wilmington, Del.

Du Pont de Nemours & Co., Inc., E. I. Wilmington, Del.

Hercules Powder Co., Wilmington, Del.

BLINDS. (Venetian.)

Swedish Venetian Blind Co., New York.

Wilson Corp., J. G., New York.

BLOCKS. (Chain.)

Wright Mfg. Co., Lisbon, O.

BLOCKS. (Paving, Cretosoted.)

American Cretosot Wks., New Orleans.

Long-Bell Lumber Co., Kansas City, Mo.

BLOCK FILLERS. (Paving.)

Barber Asphalt Co., Phila., Pa.

Barrett Co., New York, N. Y.

BLOWERS AND EXHAUST FANS.

Allen Engr. & Mfg. Co., Savannah, Ga.

Buckeye Blower Co., Columbus, O.

Buffalo Forge Co., Buffalo, N. Y.

Gotschall & Co., L. B., Dallas, Tex.

National Blow Pipe & Mfg. Co., New Orleans, La.

BLOWERS.

Steam Jet.

McClave-Brooks Co., Scranton, Pa.

Turbo.

Ingersoll-Rand Co., New York, N. Y.

BLOW PIPES.

Allen Engr. & Mfg. Co., Savannah, Ga.

Burket Sheet Metal Works, Hattiesburg, Miss.

National Blow Pipe & Mfg. Co., New Orleans, La.

Savannah Blow Pipe Co., Savannah, Ga.

Shreveport Blow Pipe & Sheet Iron Works, Ltd., Shreveport, La.

BODIES. (Automatic Dump.)

Eagle Wagon Works, Auburn, N. Y.

Jennings Automatic Dump Body, Inc., Roanoke, Va.

BOILERS.

Abendroth & Root Mfg. Co., Newburgh, N. Y.

Balch & Wilcox Co., New York, N. Y.

Brownell Co., Dayton, Ohio.

Charleston Dry Dock & Mch. Co., Charleston, S. C.

Chattanooga Boiler & Tank Co., Chattanooga, Tenn.

Cole Mfg. Co., E. D., Newman, Ga.

Corinth Mchry. Co., Corinth, Miss.

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

BRICK AND CLAYWORKING MCHY. AND SUPPLIES.
Anderson Fdry. & Mch. Co., Anderson, Ind.
Fernholm Brick Mch. Co., St. Louis, Mo.
Freese & Co., E. M., Elkhart, O.
Hartfield-Pendell Steel Co., Bucyrus, O.
International Clay Machinery Co., Dayton.
Lancaster Iron Works, Inc., Lancaster, Pa.
Steele & Sons, J. C., Stateville, N. C.
Taplin-Rice-Clarkin Co., Akron, O.

BRIDGES.
Concrete.
Robinson & Co., Dwight P., New York.

Steel.
American Bridge Co., New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Champion Bridge Co., Wilmington, O.
Chesapeake Iron Works, Baltimore, Md.
Converse Bridge & Steel Co., Chattanooga.
Farris Bridge Co., Cumberland, Md.
Graining & Co., Inc., Louisville, Ky.
Ingalls Iron Works Co., Birmingham.
Ingalls Iron Works Co., The Birmingham.
Inter'l Steel & Iron Co., Evansville, Ind.
McClintic-Marshall Co., Pittsburgh, Pa.
Richmond Struct. Steel Co., Rich'd., Va.
Virginia Bridge & Iron Co., Roanoke, Va.

BRIDGES AND STRUCTURAL IRON PAINTS.
Chattanooga Paint Co., Chattanooga, Tenn.

BRIMSTONE.
Union Sulphur Co., The, New York, N. Y.

BUCKETS.
Clim Shell.
Blaw-Knox Co., Pittsburgh, Pa.
Browning Co., Cleveland, Ohio.
Hais Mfg. Co., Geo., New York, N. Y.
Hayward Co., The, New York, N. Y.
Orion & Steinbrenner Co., Chicago, Ill.
Owen Bucket Co., The, Cleveland, O.

Dredging, Excavating, Sewer, Etc.
Hais Mfg. Co., Inc., Geo., New York.
Hais Mfg. Co., The, New York, N. Y.
Marion Steam Shovel Co., Marion, O.
Monaghan Machine Co., Chicago, Ill.
Owen Bucket Co., The, Cleveland, O.

Grub.
Pawling & Harnischfeger Co., Milwaukee.

Orange Peel.
Hayward Co., The, New York, N. Y.
Orion & Steinbrenner Co., Chicago, Ill.

Ore Handling.
Caldwell & Son Co., H. W., Chicago, Ill.
Hayward Co., The, New York, N. Y.
Owen Bucket Co., The, Cleveland, O.

BUILDERS AND CONTRACTORS.
Foundation Co., The, New York, N. Y.
Fraser, Brace & Co., New York.
Robinson & Co., Dwight P., New York.
Stone & Webster, Boston, Mass.
White Engr. Corp., The, J. G., New York.
Witmer Engineering Co., St. Louis, Mo.

BUILDINGS.
Industrial.
Belmont Iron Works, Philadelphia, Pa.
Farris Bridge Co., Cumberland, Md.
Ingalls Iron Wks. Co., Birmingham, Ala.
McClintic-Marshall Co., Pittsburgh, Pa.
Maryland Metal Building Co., Baltimore.

Metal.
Maryland Metal Building Co., Baltimore.

Portable, Steel.
Blaw-Knox Co., Pittsburgh, Pa.
Maryland Metal Building Co., Baltimore.

Portable, Wooden.
Minter Homes Co., Greenville, S. C.

Pressed Steel.
Truscon Steel Co., Youngstown, O.

BUILDING MATERIAL.
Minter Homes Co., Greenville, S. C.

BUSHINGS. (Brass & Bronze.)
Mueller Metals Co., Port Huron, Mich.

CABLES. (Copper Wire, Etc.)
Williamsport Wire Rope Co., Williamsport, Pa.

CABLES AND WIRE. (Electric.)
American Steel & Wire Co., Chicago, Ill.
Boehling's Son Co., J. A., Trenton, N. J.

CABLEWAYS. (Overhead, Suspension.)
Allen Engineering Co., Philadelphia, Pa.
Broderick & Bascom Rope Co., St. Louis.
Flory Mfg. Co., S., Bangor, Pa.

Lidgerwood Mfg. Co., New York, N. Y.
Mundy Hoisting Engine Co., J. S., Newark, N. J.
National Hoisting Eng. Co., Harrison, N. J.
Northern Steel, Chicago, Ill.

CALCINERS.
Christie Co., L. B., Pittsburgh, Pa.

CALL SYSTEMS. (Automatic.)
Automatic Electric Co., Chicago, Ill.

CAMERAS. (For Business Documents.)
Photostat Corp., Rochester, N. Y.

CAN AND BOX-MAKING MACHINERY. (Tin.)
Bliss Co., E. W., Brooklyn, N. Y.

CANNING MACHINERY AND SUPPLIES.
Robins & Co., A. K., Baltimore, Md.

CARS.
Dump, Industrial, Logging and Mine.
Electric Wheel Co., Quincy, Ill.
Georgia Car & Loco. Co., Atlanta, Ga.
International Clay Mchry. Co., Dayton, O.
Mid-Continent Eqt. & Mchry. Co., St. Louis, Mo.
Sherwood, E. C., New York, N. Y.
Southern Iron & Equip. Co., Atlanta, Ga.
United Iron Works, Kansas City, Mo.

Tank.
Liquids Despatch Line, Chicago, Ill.

CAR LOADERS AND UNLOADERS.
Bonney Supply Co., Inc., Rochester, N. Y.
Byers Machine Company, Ravenna, O.
Dow Co., The, Louisville, Ky.
Hais Mfg. Co., Geo., New York, N. Y.
Portable Mchry. Co., Passaic, N. J.

CAR ROOFS. (Pressed Steel.)
Sharon Pressed Steel Co., Sharon, Pa.

CAR WHEELS, AXLES AND TRUCKS.
Carnegie Steel Co., Pittsburgh, Pa.
United Iron Works, Kansas City, Mo.

CASTINGS.
Aluminum.
Dixie Brass & Fdy. Co., Birmingham, Ala.

Brass and Bronze.
Bethlehem Steel Co., Bethlehem, Pa.
Covington Mach. Co., Inc., Covington, Va.
Curtis Bay Copper & Iron Works, Inc., Baltimore, Md.
Dixie Brass & Fdy. Co., Birmingham, Ala.
More-Jones Brass & Metal Co., St. Louis.
Mueller Metals Co., Port Huron, Mich.

Gray Iron.
Caldwell & Co., E. R., Bradford, Pa.
Charleston Dry Dock & Mch. Co., Charleston, S. C.
Columbian Iron Wks., Chattanooga, Tenn.
Covington Mach. Co., Inc., Covington, Va.
Georgia Car & Loco. Co., Atlanta, Ga.
Glasgow Pipe & Fdy. Co., Lynchburg, Va.

Hammond-Byrd Iron Co., Birmingham, Ala.
Murray Iron Works, Burlington, Ia.
Nat'l Cast Iron Pipe Co., Birmingham.
Roanoke Bridge & Iron Wks., Roanoke, Va.
Sun Shipbuilding Co., Chester, Pa.
U. S. Cast Iron Pipe & Fdy. Co., Burlington, N. J.
Westbrook Elev. Mfg. Co., Danville, Pa.

Malleable Iron and Steel.
Mal-Gra Cast Co., Cambridge City, Ind.

Semi-Steel.
Salem Fdry. & Mch. Wks., Salem, Va.

Steel.
Bethlehem Steel Co., Bethlehem, Pa.
Crucible Steel Castings Co., Lansdowne, Pa.

CEILING.
Metal.
Berger Mfg. Co., The, Canton, Ohio.
Canton Art Metal Co., Inc., Canton, O.
Edwards Mfg. Co., The, Cincinnati, O.
Intern'l Steel & Iron Co., Evansville, Ind.
Snoedinger, F. O., Columbus, O.

CEMENT.
High Temperature.
Jointless Fire Brick Co., Chicago, Ill.

Portland.
Atlas Portland Cement Co., New York.
Clinchfield Portland Cem. Corp., Kingsport, Tenn.
Dixie Portland Cem. Co., Chattanooga.
Gulf States Portland Cement Co., De-mopolis, Ala.
National Cement Co., Birmingham, Ala.
Portland Cement Assn., Chicago.
Southern States Portland Cement Co., Rockmart, Ga.

CEMENT MACHINERY.
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Traylor Eng. & Mfg. Co., Allentown, Pa.

CEMENT TILE.
Amer. Cement Tile Mfg. Co., Pittsburgh.

CHAIN BLOCKS.
Wright Mfg. Co., Lisbon, O.

CHAINS.
Columbus McKinnon Chain Co., The, Columbus, Ohio.
Reading Chain & Block Corp., Reading, Pa.
Ryerson & Son, Jos. T., St. Louis and New York.

Dredge, Quarry, Steam, Shovel.
Columbus McKinnon Chain Co., The, Columbus, Ohio.
Knoxville Iron Co., Knoxville, Tenn.

Silent Drive.
Morse Chain Co., Ithaca, N. Y.

Screw.
Chain Belt Co., Milwaukee, Wis.
Columbus McKinnon Chain Co., The, Columbus, Ohio.
Link-Belt Co., Philadelphia, Pa.
Weller Mfg. Co., Chicago, Ill.

CHAINS. (Reinforcing Bars.)
Concrete Steel Co., New York, N. Y.

CHEMICALS.
Davison Chemical Co., Baltimore, Md.
Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.

CHEMISTS. CHEMICAL ENGINEERS.
Analytical.
Berkeley, W. N., Baltimore, Md.
Froehling & Robertson, Richmond, Va.
Hochstadter Laboratories, New York.
Hunt & Co., Robert W., Chicago, Ill.
Luter, Clark A., Baltimore, Md.
Meade & Co., Richard K., Baltimore, Md.
Pittsburgh Testing Lab., Pittsburgh, Pa.
Wiley & Co., Inc., Baltimore, Md.

Cement. (Portland.)
Berkeley, W. N., Baltimore, Md.
Froehling & Robertson, Richmond, Va.
Hunt & Co., Robert W., Chicago, Ill.
Pittsburgh Testing Lab., Pittsburgh, Pa.
Wiley & Co., Inc., Baltimore, Md.

Coal and Coke.
Berkeley, W. N., Baltimore, Md.
Hochstadter Laboratories, New York.
Hunt & Co., Robert W., Chicago, Ill.
Pittsburgh Testing Lab., Pittsburgh, Pa.
Wiley & Co., Inc., Baltimore, Md.

Consulting.
Froehling & Robertson, Richmond, Va.
Hochstadter Laboratories, New York.
Luter, Clark A., Baltimore, Md.
Wiley & Co., Inc., Baltimore, Md.

Cottonseed.
Wiley & Co., Inc., Baltimore, Md.

Fertilizers.
Froehling & Robertson, Richmond, Va.
Luter, Clark A., Baltimore, Md.
Wiley & Co., Inc., Baltimore, Md.

Industrial.
Berkeley, W. N., Baltimore, Md.
Hochstadter Laboratories, New York.
Meade & Co., Richard K., Baltimore, Md.

Minerals and Ores.
Luter, Clark A., Baltimore, Md.
Pittsburgh Testing Lab., Pittsburgh, Pa.
Wiley & Co., Inc., Baltimore, Md.

Oil.
Hochstadter Laboratories, New York.
Luter, Clark A., Baltimore, Md.
Wiley & Co., Inc., Baltimore, Md.

Steel.
Berkeley, W. N., Baltimore, Md.
Hunt & Co., Robert W., Chicago, Ill.
Pittsburgh Testing Lab., Pittsburgh, Pa.

Water.
Berkeley, W. N., Baltimore, Md.
Du Pont Chemical Co., Wilmington, Del.
Froehling & Robertson, Richmond, Va.

Hochstadter Laboratories, New York.
Wiley & Co., Inc., Baltimore, Md.

CHEMICAL MACHINERY. (Used.)
Heineken, W. P., New York, N. Y.

CHEMICAL PLANT EQUIPMENT.
Curtis Bay Copper & Iron Works, Inc., Baltimore, Md.

CHIMNEYS.
Concrete.
Rust Engineering Co., Pittsburgh, Pa.

Radial Brick.
Custodia Chimney Const. Co., Alphons, New York, N. Y.
Rust Engineering Co., Pittsburgh, Pa.

Steel.
Petroleum Iron Wks. Co., Sharon, Pa.

CITY PLANNING.
Draper, E. S., Charlotte, N. C.
Ludlow Engrs., Winston-Salem, N. C.

CLEANING POWDER.
India Alkali Works, Boston, Mass.

CLOCKS. (Watchman's Portable.)
Chicago Watchman's Clock Wks., Chicago.
Eco Clock Co., Boston, Mass.
Newman Clock Co., New York, N. Y.

CLUTCHES. (Friction.)
Caldwell Co., Inc., W. E., Louisville, Ky.
Kinney Mfg. Co., Boston, Mass.
Modest Co., The, St. Louis, Mo.
Woods Sons Co., T. B., Chambersburg, Pa.

COAL. (Bituminous.)
Alabama Co., The, Birmingham, Ala.
Central Coal & Coke Co., Kansas City.
Hammond-Byrd Iron Co., Birmingham.
Monro Warrior Coal & Coke Co., Birmingham.
Tenn. C. I. & R. R. Co., Birmingham.
Yolande Coal & Coke Co., Birmingham.

COAL AND ASH-HANDLING MCHY.
Chain Belt Co., Milwaukee, Wis.
Columbus Conveyor Co., Columbus, O.
Dow Co., Inc., The, Louisville, Ky.
Hais Mfg. Co., Geo., New York, N. Y.
Hayward Co., The, New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Lidgerwood Mfg. Co., New York, N. Y.
Link-Belt Co., Philadelphia, Pa.
Portable Mchry. Co., Passaic, N. J.
Robins Conveying Belt Co., New York.
Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.
Weller Mfg. Co., Chicago, Ill.

COAL TAR AND BY-PRODUCTS.
Barrett Co., New York, N. Y.
Brier Hill Steel Co., Youngstown, O.

COAL TIPPERS.
American Bridge Co., New York, N. Y.
Farris Bridge Co., Cumberland, Md.

COIL MAKING. (Armature and Field.)
Charlotte Elec. Repair Co., Charlotte, N. C.

COKE.
Alabama Co., The, Birmingham, Ala.
Brier Hill Steel Co., Youngstown, O.
Hammond-Byrd Iron Co., Birmingham.
Monro Warrior Coal & Coke Co., Birmingham.
Tenn. C. I. & R. R. Co., Birmingham.
Yolande Coal & Coke Co., Birmingham.

COKE OVENS. (By-Products.)
Smythe Co. S. R., Pittsburgh, Pa.

COLUMNS. (Cast Iron.)
U. S. Cast Iron Pipe & Fdy. Co., Burlington, N. J.

COMMUTATORS.
Chattanooga Armature Wks., Chattanooga.

COMPRESSORS. (Gasoline Extraction.)
Sullivan Machinery Co., Chicago, Ill.

CONCRETE CONSTRUCTION. (Reinforced.)
Atlas Portland Cement Co., New York.
Rust Engineering Co., Pittsburgh, Pa.

CONCRETE CULVERT FORMS.
Blaw-Knox Co., Pittsburgh, Pa.

CONCRETE HARDENER.
Master Builders Co., The, Cleveland, O.
Truscon Laboratories, The, Detroit, Mich.

CONC.
Dietrich
James
Knox
Laclede
Bryson
New
South
Truscon
Virginia
CONC.
W.H.
America
Concrete
Michigan
National
Wick
CONC.
FAB
National
CONC.
Buffalo
Crescent
Ingersoll
Manitowish
Westing
burgin
Worth
CONC.
Youngs
CONC.
George
CONTR
Bayley
Concrete
Va.
Doullut
Foundation
Fraser,
Hyde &
Long Co.
McDevitt
Normyale
Parliat
Robinson
Southeast
Stone &
Tucker &
White E
Widmer
Atlantic
Canal Co.
McGinnis
McWilliam
Atlantic
Bayley &
Clark Jr.
Huntington
Bayley &
Foundation
Fraser, I
Bayley &
Connell-Y
Doullut &
Foundation
Fraser, I
General E
Hyde &
Long Co.
Normyale
Robinson
Southeast
Stone &
Tucker &
White E
Hosch &
Bayley &
Foundation
Fraser, B
Foundation
Fraser, B
Bayley &
Connell-Y
Foundation
Fraser, B
Hosch &
Bayley &
Concrete S
Va.
Doullut &
Foundation
Fraser, B
Hyde &
Long Co.
McDevitt-F
Normyale
Tucker &
McCrory C
Hosch &
Kansas C
Kansas C
Bayley &
Foundation
General Eng
Fraser, B
McCrory C
Tucker &

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

CONCRETE REINFORCING BARS.

Dietrich Bros., Baltimore, Md.
Jones & Laughlin Steel Co., Pittsburgh.
Knoxville Iron Co., Knoxville, Tenn.
Laclede Steel Co., St. Louis, Mo.
Rayson & Son, Jos. T., St. Louis and
New York.
Southern Steel Prod. Co., Richmond, Va.
Truscon Steel Co., Youngstown, O.
Virginia Steel Supply Co., Richmond, Va.

CONCRETE REINFORCING WIRE AND WIRE FABRIC.

American Steel & Wire Co., Chicago, Ill.
Concrete Steel Co., New York, N. Y.
Mitchell-Tappan Co., New York, N. Y.
National Steel Fabric Co., Pittsburgh.
Wickwire-Spencer Steel Corp., New York.

CONCRETE ROAD REINFORCING FABRIC.

National Steel Fabric Co., Pittsburgh.

CONDENSERS.

Buffalo Steam Pump Co., Buffalo, N. Y.
Creson-Morris Co., Philadelphia, Pa.
Ingersoll-Rand Co., New York, N. Y.
Manistee Iron Wks. Co., Manistee, Mich.
Westinghouse El. & Mfg. Co., E. Pittsburgh.
Worthington Pump & Mch. Corp., N. Y.

CONDUITS. (Electrical, Interior, Steel.)

Youngstown Sheet & Tube Co., Youngstown, O.

CONDUIT SYSTEMS. (Underground.)

George Constr. Co., Philadelphia, Pa.

CONTRACTORS.

Buildings, Industrial.

Bayley & Co., C. A. D., Atlanta, Ga.
Concrete Steel Bridge Co., Clarksburg, W. Va.
Doulut & Williams Co., New Orleans.
Foundation Co., The, New York, N. Y.
Fraser, Brace & Co., New York.
Hyde & Baxter, Washington, D. C.
Long Co., M. A., Baltimore.
McDevitt-Fleming Co., Chattanooga, Tenn.
Normyle & Sons, M. F., Roanoke, Va.
Parish Constr. Corp., New York, N. Y.
Robinson & Co., Dwight P., New York.
Southeastern Constr. Co., Charlotte, N. C.
Stone & Webster, Inc., Boston, Mass.
Tucker & Laxon, Charlotte, N. C.
Wais Eng. Corp., The J. G., New York.
Widmer Engineering Co., St. Louis, Mo.

Drainage.

Atlantic Gulf & Pacific Co., New York.
Canal Construction Co., Memphis, Tenn.
McGinnis & Co., N. C., Memphis, Tenn.
McWilliams Co., Inc., Memphis, Tenn.

Dredging.

Atlantic Gulf & Pacific Co., New York.
Bayley & Co., C. A. D., Atlanta, Ga.

Electrical.

Clark Jr. Electric Co., Jas., Louisville, Ky.
Huntingdon & Quarry, Greenville, S. C.

Foundations and Dams.

Bayley & Co., C. A. D., Atlanta, Ga.
Foundation Co., The, New York, N. Y.
Fraser, Brace & Co., New York.

General.

Bayley & Co., C. A. D., Atlanta, Ga.
Cornell-Young Co., Macon, Ga.
Doulut & Williams Co., New Orleans.
Foundation Co., The, New York, N. Y.
Fraser, Brace & Co., New York.
General Engr. & Constr. Co., Rockford, Ill.
Hyde & Baxter, Washington, D. C.
Long Co., M. A., Baltimore.
Normyle & Sons, M. F., Roanoke, Va.
Robinson & Co., Dwight P., New York.
Southeastern Constr. Co., Charlotte, N. C.
Stone & Webster, Inc., Boston, Mass.
Tucker & Laxon, Charlotte, N. C.
White Eng. Corp., The J. G., New York.

Levers.

Rosch & Stansell, Memphis, Tenn.

Mine Shafts and Tunnels.

Bayley & Co., C. A. D., Atlanta, Ga.
Foundation Co., The, New York, N. Y.
Fraser, Brace & Co., New York.

Power Plants.

Foundation Co., The, New York, N. Y.
Fraser, Brace & Co., New York.

Railroad.

Bayley & Co., C. A. D., Atlanta, Ga.
Cornell-Young Co., Macon, Ga.
Foundation Co., The, New York, N. Y.
Fraser, Brace & Co., New York.

Reinforced Concrete.

Bayley & Co., C. A. D., Atlanta, Ga.
Concrete Steel Bridge Co., Clarksburg, W. Va.

Roofs.

Doulut & Williams Co., New Orleans.
Foundation Co., The, New York, N. Y.
Fraser, Brace & Co., New York.
Hyde & Baxter, Washington, D. C.
Long Co., M. A., Baltimore.
McDevitt-Fleming Co., Chattanooga, Tenn.
Normyle & Sons, M. F., Roanoke, Va.
Tucker & Laxon, Charlotte, N. C.

Road and Street Paving.

McCrory Co., J. B., Atlanta, Ga.
Rosch & Stansell, Memphis, Tenn.

Roofing.

Kansas City Slate & Tile Roofing Co., Kansas City, Mo.

Sewer and Water-Works.

Bayley & Co., C. A. D., Atlanta, Ga.
Foundation Co., The, New York, N. Y.
General Engr. & Constr. Co., Rockford, Ill.
Fraser, Brace & Co., New York.

Shells.

McCrory Co., J. B., Atlanta, Ga.
Tucker & Laxon, Charlotte, N. C.

CONTRACTORS' MCHY. AND SUPPLIES.

American Saw Mill Mchry. Co., Hackettstown, N. J.
Armstrong & Co., Archer, New York.
Beckerley & Trusler, Baltimore, Md.
Forschner, Alfred J., Philadelphia, Pa.
Foster Co., H. M., Baltimore, Md.
Green, L. A., Pittsburgh, Pa.
Hampton Roads Equip. Co., Norfolk, Va.
Harris Bros. Co., Chicago, Ill.
Housing Engine Sales Co., New York.
Hollander Eng. Co., N. W. York, N. Y.
Houston Bwy. Car Co., Houston, Tex.
Jager Machine Co., The, Columbus O.
Jennison, Walter H., Jacksonville, Fla.
Mallory Machinery Corp., Baltimore, Md.
Marine Metal & Supply Co., New York.
Mayer, F., Chicago, Ill.
Miles Machinery Co., Saginaw, Mich.
Miller Contractors Eqt. Co., Chattanooga.
Owen Bucket Co., The, Cleveland, O.
Pipe & Contractors' Sup. Co., New York.
Service Equipment Co., Philadelphia.
South Side Fdry. & Mch. Wks., Charleston, W. Va.
Tarr, Louis A., Inc., Baltimore, Md.
Turner Co., C., Chattanooga, Tenn.
Wilson & Co., E. H., Philadelphia, Pa.
Wilson Tank & Culvert Co., San Antonio, Tex.

CONTRACT WORK WANTED.

(See following classification):
Boiler and Tank Work.
Castings.
Forgings.
Foundry and Machine Shops.
Gear Cutting.
Machinery. (Special).
Ornamental Iron Work.
Pattern Making.
Sheet Metal Work.
Structural Steel and Iron.
Welding Plants.

American Pattern Works Co., York, Pa.
Columbus Forge & Iron Co., Columbus, O.
Roanoke Bridge & Iron Wks., Roanoke, Va.

CONVEYING AND ELEVATING MACHINERY.

Caldwell & Son Co., H. W., Chicago, Ill.
Chain Belt Co., Milwaukee, Wis.
Charleston Industrial Corp., Nitro, W. Va.
Dow Co., Inc., The, Louisville, Ky.
Haise Mfg. Co., Geo., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Co., Philadelphia, Pa.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
Portable Mchry. Co., Passaic, N. J.
Robins Conveying Belt Co., New York.
Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.
Taplin-Rice-Clerkin Co., Akron, O.
Weller Mfg. Co., Chicago, Ill.

Coal and Cargo.

Columbus Conveyor Co., Columbus, O.

Portable.

Jeffrey Mfg. Co., Columbus, O.
Hampton Roads Equip. Co., Norfolk, Va.

COPPER & BRASS.

Copper & Brass Research Assn., New York

CORD. (Bratled.)

Samson Cordage Works, Boston, Mass.

CORDAGE.

Plymouth Cordage Co., North Plymouth, Mass.
Samson Cordage Works, Boston, Mass.
Whitlock Cordage Co., New York, N. Y.

COTTON-GIN MACHINERY.

Continental Gin Co., Birmingham, Ala.

COTTON-MILL COLUMNS.

Cordele Sash, Door & Lumber Co., Cordele, Ga.

COTTON-MILL MACHINERY.

Crompton & Knowles Loom Works, Worcester, Mass.
Draper Corporation, Hopedale, Mass.

COTTON-MILL SUPPLIES.

Crompton & Knowles Loom Works, Worcester, Mass.

COTTONSEED-OIL MACHINERY.

Bauer Bros. Co., The, Springfield, O.
Cardwell Machine Co., Richmond, Va.

COTTON TIES.

Pittsburgh Steel Co., Pittsburgh, Pa.

COUPLINGS.

Golden's Fdry. & Mch. Co., Columbus, Ga.
Wood Drill Works, Paterson, N. J.

Shaft.

Wood's Sons Co., T. B., Chambersburg, Pa.

COUPLING PIPE.

American Spiral Pipe Wks., Chicago, Ill.

COVERINGS. (Pipe, Boilers, etc.)

Joona-Marville, Inc., H. W., New York.
Wexford & Son Co., A., Elmira, N. Y.

CRANES.

Bor & Co., Inc., Alfred, Phila., Pa.
Byers Machine Company, Ravenna, O.
New Jersey Fdry. & Mach. Co., New York.
Niles-Bement-Pond Co., New York, N. Y.
Penn. Bridge Co., New York, N. Y.
U. S. Crane Co., Chicago, Ill.

Electric Traveling.

Bor & Co., Inc., Alfred, Phila., Pa.
Chambers Engr. Co., The, Kenton, O.
Chesapeake Iron Works, Baltimore, Md.
Lane Mfg. Co., Montpelier, Vt.
Link-Belt Co., Philadelphia, Pa.
Pawling & Harnischfeger Co., Milwaukee.
Reading Chain & Block Corp., Reading, Pa.
Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.

Gasoline.

Pawling & Harnischfeger Co., Milwaukee.
Penn Bridge Co., New York, N. Y.

Gentry and Cantilever.

Orton & Steinbrenner Co., Chicago, Ill.

Jib.

Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.

Locomotive.

Austin Machinery Corp., Chicago, Ill.
Browning Co., Cleveland, Ohio.
Bucyrus Co., South Milwaukee, Wis.
Byers Machine Company, Ravenna, O.
Erie Steam Shovel Co., (Ball Engine Co.), Erie, Pa.
Hoisting Mchry. Co., New York, N. Y.
King, Philip T., New York, N. Y.
Link-Belt Co., Philadelphia, Pa.
Orton & Steinbrenner Co., Chicago, Ill.

Material Handling.

Bay City Dredge Works, Bay City, Mich.
Northwest Engr. Co., Chicago, Ill.

Traveling, Hand, Power.

Bor & Co., Inc., Alfred, Phila., Pa.
Champion Engr. Co., The, Kenton, O.
Chesapeake Iron Works, Baltimore, Md.
Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.

CRATING LUMBER.

American Lumber Co., Laurel, Miss.
Williams, Henry O., Berzella, Ga.

CRESOTING. (Wood Materials.)

American Cresote Wks., New Orleans.
American Cresoting Co., Bogalusa, La.
Eppinger & Russell Co., New York, N. Y.
Gulport Cresoting Co., Gulfport, Miss.
Pensacola Cresoting Co., Pensacola, Fla.
Savannah Cresoting Co., Inc., The, Port Wentworth, Savannah, Ga.
Southern Cresoting Co., Ltd., Sildell, La.
Southern Wood Preserving Co., Atlanta.

CRESOTING MATERIALS.

Barrett Co., New York, N. Y.

CROSSARMS. (Cresoted.)

American Cresote Wks., New Orleans.
American Cresoting Co., Bogalusa, La.
Cresoted Materials Co., Inc., New Orleans.
Gulport Cresoting Co., Gulfport, Miss.
Pensacola Cresoting Co., Pensacola, Fla.
Savannah Cresoting Co., Inc., The, Port Wentworth, Savannah, Ga.
Southern Wood Preserving Co., Atlanta.

CROSTIES.

Cresoted.
American Cresote Wks., New Orleans.
American Cresoting Co., Bogalusa, La.
Cresoted Materials Co., Inc., New Orleans.
Eppinger & Russell Co., New York, N. Y.
Gulport Cresoting Co., Gulfport, Miss.
Pensacola Cresoting Co., Pensacola, Fla.
Savannah Cresoting Co., Inc., The, Port Wentworth, Savannah, Ga.
Southern Wood Preserving Co., Atlanta.

Oak.

McRae Lumber Co., Corinth, Miss.

CRUSHED STONE. (Road Concrete and Ballast.)

Amer. Limestone Co., Knoxville, Tenn.
Boxley & Co., W. W., Roanoke, Va.

CRUSHERS.

Coal and Coke.
Orton & Steinbrenner Co., Chicago, Ill.
Weller Mfg. Co., Chicago, Ill.

Williams Patent Crusher & Pulverizer Co., Chicago, Ill.

Corn and Cob.

Gruesdler Pat. Crusher & Pul. Co., St. Louis.

Williams Patent Crusher & Pulverizer Co., Chicago, Ill.

Rock.

Austin Mfg. Co., Chicago, Ill.

Austin-Western Road Mchry. Co., Chicago.

Bucanan Co., Inc., C. G., New York.

Good Roads Mchry. Co., Atlanta, Ga.

Traylor Eng. & Mfg. Co., Allentown, Pa.

Universal Road Mch. Co., Kingston, N. Y.

Wilson & Co., E. H., Philadelphia, Pa.

CRUSHING AND PULVERIZING MACHINERY.

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Buchanan Co., Inc., C. G., New York.
Gruesdler Pat. Crusher & Pul. Co., St. Louis.
Jeffrey Mfg. Co., Columbus, O.
McLanahan-Stone Mch. Co., Hollidaysburg, Pa.
Raymond Bros. Impact Pulv. Co., Chicago.
Traylor Eng. & Mfg. Co., Allentown, Pa.
Williams Patent Crusher & Pulverizer Co., Chicago, Ill.
Worthington Pump & Mch. Corp., N. Y.

CULVERT PIPE.

Cast Iron.
American C. I. Pipe Co., Birmingham.
U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.
Wood & Co., B. D., Philadelphia, Pa.

Vitrified.

Chattanooga Sewer Pipe Works, Chattanooga, Tenn.

CULVERTS. (Corrugated Metal.)

Amer. Sheet & Tin Plate Co., Pittsburgh.
Armco Cul. & Flume Mfg. Assn., Chicago.
Berger Mfg. Co. of Texas, Dallas, Tex.
Canton Culvert & Silo Co., The, Canton, Chattanooga Road Machinery Co., Chattanooga, Tenn.
Dominion Metal Prod. Corp., Roanoke, Va.
Florida Metal Products Co., The, Jacksonville, Fla.
Galton Iron Works & Mfg. Co., Galton, O.

CURB PROTECTORS. (Steel Bars.)

Concrete Steel Co., New York, N. Y.
National Steel Fabric Co., Pittsburgh.
Truscon Steel Co., Youngstown, O.

CUTS. (Half-tone, Lines, etc.)

Alpha Photo Eng. Co., Baltimore, Md.

CUTTERS. (Wire Rope.)

Leschen & Sons Rope Co., A., St. Louis.

CYLINDERS. (Compressed Air, Gas.)

National Tube Co., Pittsburgh, Pa.

DECK AUXILIARY MCHY. (Steamship.)

Bethlehem Shipbuilding Corp., Bethlehem.

DERRICKS AND DERRICK FITTINGS.

Allen Engineering Co., Philadelphia, Pa.
Elect. Hoist & Derrick Co., Hog Island, Pa.
Hayward Co., The, New York, N. Y.
Lidgerwood Mfg. Co., New York, N. Y.
Mundy Hoisting Engine Co., J. B., Newark, N. J.
National Hoisting Eng. Co., Harrison, N. J.
Penn Bridge Co., New York, N. Y.

Guy.

Penn Bridge Co., New York, N. Y.

Shut Les.

Penn Bridge Co., New York, N. Y.

DESIGNERS AND ILLUSTRATORS. (Printed Matter.)

Alpha Photo Eng. Co., Baltimore, Md.

DIGESTERS.

Bennet & Sons Co., Edw., Baltimore.

DITCHING MACHINERY.

Austin Mchry. Corp., Chicago, Ill.
Browning Co., Cleveland, Ohio.
Buckeye Traction Ditcher Co., Findlay, O.
Bucyrus Co., South Milwaukee, Wis.
Byers Machine Company, Ravenna, O.
Erie Steam Shovel Co., (Ball Engine Co.), Erie, Pa.
Hayward Co., The, New York, N. Y.
Marion Steam Shovel Co., Marion, O.
Osgood Co., The, Marion, O.
Owen Bucket Co., Cleveland, O.

DOORS.

Fire.
Richmond Fireproof Door Co., Richmond, Ind.

Schoedinger, F. O., Columbus, O.

Heavy Metal.

Cincinnati Mfg. Co., Cincinnati, O.

Dahlstrom Metallic Door Co., Jamestown, N. Y.

Kalamazoo.

Moeschl-Edwards Corrug. Co., Cincinnati.

Probert Sheet Metal Co., Cincinnati.

Rolling, Steel and Wood.

Wilson Corporation, J. G., New York.

Steel Rolling, Etc.

Edwards Mfg. Co., The, Cincinnati, O.

Kinnear Mfg. Co., Columbus, O.

Lenderking, Philip H., Baltimore, Md.

Moeschl-Edwards Corrug. Co., Cincinnati.

Tin Clad.

Richmond Fireproof Door Co., Richmond, Ind.

Schoedinger, F. O., Columbus, O.

Yellow Pine.

Cordele Sash, Door & Lumber Co., Cordele, Ga.

Morgan Millwork Co., Baltimore, Md.

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

RAFTSMEN'S SUPPLIES.

Weber Co., F., Philadelphia, Pa.

DRAGLINE EXCAVATORS.

Monaghan Machine Co., Chicago, Ill.
Northwest Engr. Co., Chicago, Ill.
Orton & Steinbrenner Co., Chicago.
Saunders Bros., Chicago, Ill.

DREDGES. (Dipper, Elevator, Hydraulic.)

Austin Machy. Corp., Chicago, Ill.
Bay City Dredge Works, Bay City, Mich.
Brynmor Co., South Milwaukee, Wis.
Flory Mfg. Co., S., Bangor, Pa.
Marion Steam Shovel Co., Marion, O.
Morris Mach. Wks., Baldwinville, N. Y.
Osgood Co., The, Marion, Ohio.

DREDGING. (River & Harbor Improvement.)

Atlantic, Gulf & Pacific Co., New York.

DRILLING CONTRACTORS.

Hughes Specialty Well Drilling Co., Charleston, S. C.
Pennsylvania Drilling Co., Pittsburgh.

DRILLS.

Artesian Well.
Keystone Driller Co., Beaver Falls, Pa.
Va. Mchry. & Well Co., Richmond, Va.
Electric.
Clark Jr. Electric Co., Jas., Louisville, Ky.
Independent Pneumatic Tool Co., Chicago.
Pneumatic.
Ingersoll-Rand Co., New York, N. Y.
Prospecting.
Ingersoll-Rand Co., New York, N. Y.
Keystone Driller Co., Beaver Falls, Pa.
Nagle Electric Co., The W. G., Toledo, O.
Rock and Mining.
Ingersoll-Rand Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.
Wood Drill Works, Paterson, N. J.

DROP FORGINGS.

American Spiral Pipe Wks., Chicago, Ill.
Scranton Forging Co., Scranton, Pa.
Vogt Mch. Co., Inc., Henry, Louisville.

DROP-FORGING MACHINERY.

Bliss Co., E. W., Brooklyn, N. Y.

DRY DOCKS. (Builders of.)

American Bridge Co., New York, N. Y.

DRYERS.

Christie Co., L. B., Pittsburgh, Pa.

DRYING MACHINERY.

American Process Co., New York, N. Y.
Bailey-Lobby Co., Charleston, S. C.
Buffalo Forge Co., Buffalo, N. Y.
Christie Co., L. B., Pittsburgh, Pa.
Hershey Mfg. Co., South Boston, Mass.

DRYKILNS.

Buffalo Forge Co., Buffalo, N. Y.

Moore Dry Kiln Co., Jacksonville, Fla.

DRYKILN EQUIPMENT.

Moore Dry Kiln Co., Jacksonville, Fla.

DUMB-WAITERS. (Electric.)

Capital Lift & Mfg. Co., Columbus, O.
Kimball Bros. Co., Council Bluffs, Iowa.

DUMP BODIES.

Columbia Wagon & Body Co., Columbia, Pa.
Eagle Wagon Works, Auburn, N. Y.
Jennings Automatic Dump Body, Inc., Hanoka, Va.

DUMP CARS.

International Clay Mchry. Co., Dayton, O.

DUMP WAGONS.

Acme Wagon Co., Evansville, Pa.
Austin Mfg. Co., Chicago, Ill.
Columbia Wagon & Body Co., Columbia, Pa.
Eagle Wagon Works, Auburn, N. Y.

DUST-COLLECTING SYSTEMS.

Allen Engr. & Mfg. Co., Savannah, Ga.
Buffalo Forge Co., Buffalo, N. Y.
Burkett Sheet Metal Works, Hattiesburg, Miss.
Savannah Blow Pipe Co., Savannah, Ga.
Shreveport Blow Pipe & Sheet Iron Works, Ltd., Shreveport, La.

DUSTPROOFING. (Concrete.)

Master Builders Co., The, Cleveland, O.
Sonnenborn Sons, Inc., L., New York.
Trucon Laboratories, The, Detroit, Mich.

DUSTSTUFFS.

Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.

DYNAMITE. (Industrial and Agricul.)

Atlas Powder Co., Wilmington, Del.
Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.
Hercules Powder Co., Wilmington, Del.

DYNAMOS AND MOTORS.

Charleston Industrial Corp., Nitro, W. Va.
Clark Jr. Electric Co., Jas., Louisville, Ky.
Fairbanks-Morse & Co., Chicago, Ill.
Hempill & Co., J. L., Hoboken, N. J.
Ideal Electric & Mfg. Co., Mansfield, O.
Markman Eng. Co., Chicago, Ill.
Mott's Sons, Geo. F., York, Pa.
Mehan Co., Andrew I., Phila., Pa.
Nagle Electric Co., The W. G., Toledo, O.
Nashville Ind. Corp., Jacksonville, Tenn.
Nussbaum & Co., V. M., Ft. Wayne, Ind.
Pack Machinery Co., Cincinnati, O.
Sales Corp., The, Washington, D. C.
Triumph Electric Co., Cincinnati, O.
Wagner Electric Corporation, St. Louis.
Westhouse El. & Mfg. Co., E. Pittsburgh.

ELECTORS. (Sewage.)

Lunkfheimer Co., The, Cincinnati, O.

Pacific Flush-Tank Co., New York, N. Y.

ELECTRIC LIGHTING FIXTURES.

Frank, Inc., I. F., New York, N. Y.

Reflectolyte Co., The, St. Louis, Mo.

ELECTRIC MACHINERY. (Dynamics, Generators, Motors, etc.)

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Castle & Wilson, Pittsburgh, Pa.
Charleston Industrial Corp., Nitro, W. Va.
Clark Jr. Electric Co., Jas., Louisville, Ky.
Coleman-Shoemaker, Inc., Phila., Pa.
Crocker-Wheeler Co., Ampere, N. J.
Electric Cont. & Mfg. Co., Cleveland.
Fairbanks-Morse & Co., Chicago, Ill.
General Electric Co., Schenectady, N. Y.
Gottschall & Co., L. B., Dallas, Tex.
Gregory Electric Co., Chicago, Ill.
Hempill & Co., J. L., Hoboken, N. J.
Ideal Electric & Mfg. Co., Mansfield, O.
Klein & Co., Nathan, New York, N. Y.
McMillan, A., Chicago, Ill.
Miles Machinery Co., Saginaw, Mich.
Morse Co., Andrew I., Phila., Pa.
Nagle Electric Co., The W. G., Toledo, O.
Nashville Ind. Corp., Jacksonville, Tenn.
Nussbaum & Co., V. M., Ft. Wayne, Ind.
Pack Machinery Co., Cincinnati, O.
Sales Corp., The, Washington, D. C.
Triumph Electric Co., Cincinnati, O.
Wagner Electric Corporation, St. Louis.
Westhouse El. & Mfg. Co., E. Pittsburgh.
Wilson Machinery Co., St. Louis, Mo.

ELECTRICAL CONTRACTORS. (Instruments and Supplies.)

Crocker-Wheeler Co., Ampere, N. J.

ELECTRICAL INSTRUMENTS AND SUPPLIES.

Doubleday-Hill Elec. Co., Wash., D. C.

General Electric Co., Schenectady, N. Y.

ELECTRICAL MACHY. REPAIRING. (Motors, Generators, etc.)

Charlotte Elec. Repair Co., Charlotte, N. C.
Chattanooga Armature Wks., Chattanooga.
Doubleday-Hill Electric Co., Washington, D. C.

ELECTRICAL WIRING DEVICES.

Hubbell, Inc., Harvey, Bridgeport, Conn.

ELEVATORS.

Electric.
Am. Elev. & Mch. Co., Inc., Louisville, Ky.
Capital Lift & Mfg. Co., Columbus, O.
E. C. Elev. Mfg. Co., Kansas City, Mo.
Kimball Bros. Co., Council Bluffs, Iowa.
McInerney Co., Council Bluffs, Ia.
Moffatt Mchry. Mfg. Co., Charlotte, N. C.
Reedy Elevator Co., Cincinnati, O.
Reedy Elevator Co., Baltimore, Md.
Westbrook Elev. Mfg. Co., Danville, Va.
Westbrook Elevator Co., W. J., Greensboro, N. C.
Hand and Selt Power.
Am. Elev. & Mch. Co., Inc., Louisville, Ky.
Kimball Bros. Co., Council Bluffs, Iowa.
E. C. Elev. Mfg. Co., Kansas City, Mo.
Moffatt Mchry. Mfg. Co., Charlotte, N. C.
Reedy Elevator Co., Cincinnati, O.
Reedy Elevator Co., Baltimore, Md.
Westbrook Elev. Mfg. Co., Danville, Va.
Westbrook Elevator Co., W. J., Greensboro, N. C.

Hydraulic.

Am. Elev. & Mch. Co., Inc., Louisville, Ky.
E. C. Elev. Mfg. Co., Kansas City, Mo.
Moffatt Mchry. Mfg. Co., Charlotte, N. C.
Reedy Elevator Co., Cincinnati, O.
Reedy Elevator Co., Baltimore, Md.
Westbrook Elev. Mfg. Co., Danville, Va.
Westbrook Elevator Co., W. J., Greensboro, N. C.

Portable for Warehouse, Etc.

Dow Co., Inc., The, Louisville, Ky.
New Jersey Fdy. & Mch. Co., New York.

Steam Hydraulic.

Ridgway & Son Co., Coatesville, Pa.

ELEVATOR BUCKETS.

Caldwell & Son Co., H. W., Chicago.
Hendrick Mfg. Co., Carbondale, Pa.
Link-Belt Co., Philadelphia, Pa.

ELEVATOR CABLES.

Leschen & Sons Rope Co., A., St. Louis.

ELEVATOR ENCLOSURES AND CARS.

Dow Co., Inc., The, Louisville, Ky.
Dufur & Co., Baltimore, Md.
Dufur, Baggett & Co., Baltimore, Md.

ENGINEERS.

Agricultural.

Morse Agricultural Service, New Orleans.

Alkali.

Mount, W. D., Lynchburg, Va.

Appraisal.

Allison, Walter A., Philadelphia, Pa.
Amer. Appraisal Co., Milwaukee, Wis.
Avram & Co., Inc., M. H., New York.
Black & Veatch, Kansas City, Mo.
Crow Inc., Waller, Chicago, Ill.
Day & Zimmermann, Inc., Phila., Pa.
Evanson & Associates, Howard N., Pittsburgh, Pa.
Ford, Bacon & Davis, Inc., New York.
Ludlow Engrs., Winston-Salem, N. C.
Meade & Co., Richard K., Baltimore, Md.
Olson, O., Jacksonville, Fla.
Parsons, Klapp, Brinckerhoff & Douglas, New York, N. Y.
T. G. Godfrey, M. E., Washington, D. C.
Weller, Francis R., Washington, D. C.

Bridge.

Concrete-Steel Bridge Co., Clarksburg, W.

Freeland, Roberts & Co., Nashville.
Gardner & Howe, Memphis, Tenn.
Greiner & Co., J. E., Baltimore, Md.
Luten, Daniel B., Indianapolis, Ind.
Robinson & Co., Dwight P., New York.
Spiker & Loe, Atlanta, Ga.
Steel, Jr., J. A., Knoxville, Tenn.
Turner, C. A. F., Minneapolis, Minn.
Wallace & Crenshaw, Knoxville, Tenn.

Cement Mill.

Meade & Co., Richard K., Baltimore, Md.

Chemical.

Dow & Smith, New York, N. Y.
Ludlow Engrs., Winston-Salem, N. C.
Markel, F. E., Atlanta, Ga.
Meade & Co., Richard K., Baltimore, Md.
Mount, W. D., Lynchburg, Va.
Pittsburgh Testing Lab., Pittsburgh, Pa.

Civil.

Ashworth, F. K., Miami, Fla.
Ayres & Miller, Memphis, Tenn.
Barton, S. R., Birmingham, Ala.
Black & Veatch, Kansas City, Mo.
Camp & Associates, E. V., Atlanta, Ga.
Carroll Engr. Co., The, Wilmington, N. C.
Clark & Krebs, Charleston, W. Va.
Day & Zimmermann, Inc., Philadelphia.
Greiner & Co., J. E., Baltimore, Md.
Hills Co., George B., Jacksonville, Fla.
Krebs, H. E., Nashville, Tenn.
M. O. & W. Engineering Corp., Norton, Va.
Parsons Eng. Co., Pine Bluff, Ark.
Steel, Jr., J. A., Knoxville, Tenn.
White Engr. Corp., The J. G., New York.
Willis, W. N., Spartanburg, S. C.

Conduit Systems. (Underground.)

George Constr. Co., Philadelphia.

Dam.

Byllesby Engineering & Management Corp., Chicago, Ill.
Cooper & Co., Hugh L., New York.
Gardner & Howe, Memphis, Tenn.
Hawley, Chas. B., Washington, D. C.
Lee, William S., Charlotte, N. C.
Ludlow Engrs., Winston-Salem, N. C.
Main, Chas., Boston, Mass.
Meade & Co., Richard K., Baltimore, Md.
Parsons, Klapp, Brinckerhoff & Douglas, New York, N. Y.
Robinson & Co., Dwight P., New York.
Sander & Sweeney, Anderson, S. C.
Scotfield Engineering Co., Philadelphia.
Srinne & Co., J. E., Greenville, S. C.
Stucker & Laxon, Marion, Tenn.
Weller, Francis R., Washington, D. C.
White Engr. Corp., The J. G., New York.

Drainage and Irrigation.

Ashworth, F. K., Miami, Fla.
Ayres & Miller, Memphis, Tenn.
Canal Construction Co., The, Wilmington, N. C.
Day & Zimmermann, Inc., Phila., Pa.
Ford, Bacon & Davis, Inc., New York.
Hills Co., George B., Jacksonville, Fla.
Ludlow Engrs., Winston-Salem, N. C.
McGinnis & Co., N. C., Memphis, Tenn.
McWilliams Co., Inc., Memphis, Tenn.
Olson, O., Jacksonville, Fla.
Parsons Eng. Co., Pine Bluff, Ark.

Electric.

Meade & Co., Richard K., Baltimore, Md.
Electrical.
Biggs Engr. Co., W. E., Knoxville, Tenn.
Cooper & Co., Hugh L., New York.
Crocker-Wheeler Co., Ampere, N. J.
Day & Zimmermann, Inc., Phila., Pa.
Evanson & Associates, Howard N., Pittsburgh, Pa.
George Constr. Co., Philadelphia.
Greenwood Engr. Co., Philadelphia.
Huntington & Guerry, Greenville, S. C.
L. E. Williams, S., Charlotte, N. C.
Lide, Martin J., Birmingham, Ala.
Loehrs Co., The Daniel M. Cleveland, O.
Markel, F. E., Atlanta, Ga.
Mott's Sons, Geo. F., York, Pa.
M. O. & W. Engineering Corp., Norton, Va.
Robinson & Co., Dwight P., N. Y.
Stone & Webster, Inc., Boston, Mass.
Tucker & Laxon, Charlotte, N. C.
Weller, Gilbert C., Durham, N. C.
Wiley & Wilson, Lynchburg, Va.

Electric-Light and Power Plants.

Archer & Co., E. T., Kansas City, Mo.
Black & Veatch, Kansas City, Mo.

Byllesby Engineering & Management Corp., Chicago, Ill.

Camp & Associates, E. V., Atlanta, Ga.
Cooper & Co., Hugh L., New York.
Day & Zimmermann, Inc., Phila., Pa.
Elbert, Hermann, Fello, Md.
Ford, Bacon & Davis, Inc., New York.
Greenwood Engr. Co., Philadelphia.
Hawley, Chas. B., Washington, D. C.
Lee, William S., Charlotte, N. C.
Long Co., M. A., Baltimore.
Ophuls & Hill, Inc., New York.
Parsons, Klapp, Brinckerhoff & Douglas, New York, N. Y.
Posey James, Baltimore, Md.
Robinson & Co., Dwight P., New York.
Scotfield Engineering Co., Philadelphia.
Srinne & Co., J. E., Greenville, S. C.
Stucker & Laxon, Marion, Tenn.
Tucker & Laxon, Charlotte, N. C.
Weller, Francis R., Washington, D. C.
White Engr. Corp., The J. G., New York.
White, Gilbert C., Durham, N. C.

Gas.

Allison, Walter A., Philadelphia, Pa.
Byllesby Engineering & Management Corp., Chicago, Ill.
Ford, Bacon & Davis, Inc., New York.

Geological.

Clark & Krebs, Charleston, W. Va.
Crown Inc., Waller, Chicago, Ill.
Froehling & Robertson, Richmond, Va.
Meade & Co., Richard K., Baltimore, Md.

Heating.

Crawford & Staten, Atlanta, Ga.

Wiley & Wilson, Lynchburg, Va.

Hydraulic.

Ayres & Miller, Memphis, Tenn.
Black & Veatch, Kansas City, Mo.
Markel, F. E., Atlanta, Ga.

Hydro-Electric.

Byllesby Engineering & Management Corp., Chicago, Ill.
Cooper & Co., Hugh L., New York.
Hawley, Chas. B., Washington, D. C.
Lee, William S., Charlotte, N. C.
Ludlow Engrs., Winston-Salem, N. C.
Main, Chas., Boston, Mass.
Meade & Co., Richard K., Baltimore, Md.
Parsons, Klapp, Brinckerhoff & Douglas, New York, N. Y.
Robinson & Co., Dwight P., New York.
Sander & Sweeney, Anderson, S. C.
Scotfield Engineering Co., Philadelphia.
Srinne & Co., J. E., Greenville, S. C.
Stucker & Laxon, Marion, Tenn.
Weller, Francis R., Washington, D. C.
White Engr. Corp., The J. G., New York.

Housing.

Minter Homes Co., Greenville, S. C.

Ice-Making Plants.

Burrows, E. A., Chicago, Ill.
Ophuls & Hill, Inc., New York.
Posey, James, Baltimore, Md.

Industrial Plants.

Avram & Co., Inc., M. H., New York.
Biggs Engr. Co., W. E., Knoxville, Tenn.
Burrows, E. A., Chicago, Ill.
Concrete Steel Bridge Co., Clarksburg, W. Va.
Crow Inc., Waller, Chicago, Ill.
Day & Zimmermann, Inc., Phila., Pa.
Deullitt & Williams Co., New Orleans.
Elbert, Hermann, Fello, Md.
Gardner & Howe, Memphis, Tenn.
Greenwood Engr. Co., Philadelphia.
Greiner & Co., J. E., Baltimore, Md.
Hawley, Chas. B., Washington, D. C.
Hills Co., George B., Jacksonville, Fla.
Huntington & Guerry, Greenville, S. C.
Hutton & Schreffer, Raleigh, N. C.
Long Co., M. A., Baltimore.
Loehrs Co., The Daniel M. Cleveland, S. C.
McDevitt-Fleming Co., Chattanooga, Tenn.
Main, Chas. T., Boston, Mass.
Meade & Co., Richard K., Baltimore, Md.
Mee & Mees, Charlotte, N. C.
Mount, W. D., Lynchburg, Va.
O'Brien & Yost, Memphis, Tenn.
Olson, O., Jacksonville, Fla.
Ophuls & Hill, Inc., New York.
Parsons, Klapp, Brinckerhoff & Douglas, New York, N. Y.
Posey, James, Baltimore, Md.
Seld, J. G., Chicago, Ill.
Robinson & Co., Dwight P., New York.
Rust Engineering Co., Pittsburgh, Pa.
Scotfield Engineering Co., Philadelphia.
Shearer, C. E., Memphis, Tenn.
Srinne & Co., J. E., Greenville, S. C.
Smith Co., The, Birmingham, Ala.
Stone & Webster, Inc., Boston, Mass.
Turner, C. A. F., Minneapolis, Minn.
Wallace & Crenshaw, Knoxville, Tenn.
White Engr. Corp., The J. G., New York.
Widmer Engineering Co., St. Louis, Mo.
Willis, W. N., Spartanburg, S. C.

Inspection and Tests.

Avram & Co., Inc., M. H., New York.
Berkeley, W. N., Baltimore, Md.
Camp & Associates, E. V., Atlanta, Ga.
Crown Inc., Waller, Chicago, Ill.
Dow & Smith, New York, N. Y.
Froehling & Robertson, Richmond, Va.
Hunt & Co., S. R., Chicago, Ill.
Pittsburgh Testing Lab., Pittsburgh, Pa.

Iron and Steel Plant.

Smrthe Co., S. R., The, Pittsburgh, Pa.

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

Landscapes.

Ashworth, F. K., Miami, Fla.
Draper, E. S., Charlotte, N. C.

Leaves.

Ayres & Miller, Memphis, Tenn.
Parsons Eng. Co., Pine Bluff, Ark.

Lighting.

Spillbury Engineering & Management Corp., Chicago, Ill.
Ford, Bacon & Davis, Inc., New York.
Greenwood Eng. Co., Philadelphia.
Huntington & Guerry, Greenville, S. C.
McCrary Co., J. B., Atlanta, Ga.
Posey, James, Baltimore, Md.
Wiley & Wilson, Lynchburg, Va.

Limelike.

Meade & Co., Richard K., Baltimore, Md.
Mount, W. D., Lynchburg, Va.

Management.

Hill, Norman A., Baltimore, Md.

Mechanical.

Biggs Eng. Co., W. E., Knoxville, Tenn.
Camp & Associates, E. V., Atlanta, Ga.
Day & Zimmerman, Inc., Philadelphia.
Ewert, Hermann, Balt., Md.
George Constr. Co., Philadelphia.
Lee, William S., Charlotte, N. C.
Lide, Martin J., Birmingham, Ala.
Loomis Co., The Daniel M., Cleveland, O.
Markel, F. E., Atlanta, Ga.
Meade & Co., Richard K., Baltimore, Md.
Meat & Meats, Charlotte, N. C.
Mount, W. D., Lynchburg, Va.
M. O. & W. Engineering Corp., Norton, Va.
Posey, James, Baltimore, Md.
Said, J. G., Chicago, Ill.
Tall & Nordmeyer Eng. Co., St. Louis.
Wiley & Wilson, Lynchburg, Va.

Metallurgical.

Meade & Co., Richard K., Baltimore, Md.
Tall Godfrey, M. S., Washington, D. C.

Mining.

Clark & Krebs, Charleston, W. Va.
Barnson & Associates, Howard N., Pittsburgh, Pa.

M. O. & W. Engineering Corp., Norton, Va.
Tall Godfrey, M. S., Washington, D. C.

Muscle.

Albright & Mebus, Philadelphia, Pa.
Archer & Co., E. T., Kansas City, Mo.
Ashworth, F. K., Miami, Fla.
Baton, S. R., Birmingham, Ala.
Camp & Associates, E. V., Atlanta, Ga.
Clark & Krebs, Charleston, W. Va.
Doullut & Williams Co., New Orleans.
Dow & Smith, New York, N. Y.
George Constr. Co., Philadelphia.
Hills Co., George B., Jacksonville, Fla.
Klyce, B. H., Nashville, Tenn.
Ludlow Engineers, Winston-Salem, N. C.
McCalla & Co., J. B., Knoxville, Tenn.
McCrary Co., J. B., Atlanta, Ga.
Parsons Eng. Co., Pine Bluff, Ark.
White, Gilbert C., Durham, N. C.

Packing-Houses.

Burt & Co., M. F., Memphis, Tenn.

Paving and Roads.

Albright & Mebus, Philadelphia, Pa.
Archer & Co., E. T., Kansas City, Mo.
Baton, S. R., Birmingham, Ala.
Camp & Associates, E. V., Atlanta, Ga.
Caroline Eng. Co., Wilmington, N. C.
Dev & Smith, New York, N. Y.
Freeland, Roberts & Co., Nashville, Tenn.
Klyce, B. H., Nashville, Tenn.
Ludlow Engineers, Winston-Salem, N. C.
Parsons Eng. Co., Pine Bluff, Ark.
Sanders & Sweeney, Anderson, S. C.
Wallace & Crenshaw, Knoxville, Tenn.
White, Gilbert C., Durham, N. C.
Wills, W. N., Spartanburg, S. C.

Public Service Properties.

Ayres & Miller, Memphis, Tenn.
Spillbury Engineering & Management Corp., Chicago, Ill.
Cooper & Co., Hugh L., New York.
Day & Zimmerman, Inc., Philadelphia.
Ford, Bacon & Davis, Inc., New York.
Parsons Eng. Co., Pine Bluff, Ark.
Robinson & Co., Dwight P., New York.
Scott Engineering Co., Philadelphia.
Stone & Webster, Inc., Boston, Mass.
Weller, Francis R., Washington, D. C.
White Eng. Corp., The J. G., New York.

Railroad.

Clark & Krebs, Charleston, W. Va.
Meat & Meats, Charlotte, N. C.
Wills, W. N., Spartanburg, S. C.

Refrigerating.

Baker Ice Machine Co., Omaha, Nebr.
Barrows, E. A., Chicago, Ill.
Burt & Co., M. F., Memphis, Tenn.
Hawley, Chas. B., Washington, D. C.
Markel, F. E., Atlanta, Ga.
Osburn & Hill, Inc., New York.
York Mfg. Co., York, Pa.

Reinforced Concrete (Bridge Buildings, Etc.)

Ayres & Miller, Memphis, Tenn.
Camp & Associates, E. V., Atlanta, Ga.
Caroline Eng. Co., Wilmington, N. C.
Concrete Steel Bridge Co., Clarkburg, W. Va.

Foulhoux, J. A., New York, N. Y.
Freeland, Roberts & Co., Nashville, Tenn.

Fuston, Walter J., Dallas, Tex.
Gardner & Howe, Memphis, Tenn.

Greiner & Co., J. E., Baltimore, Md.
Hutton & Schreffer, Raleigh, N. C.

Long Co., M. A., Baltimore.

Luten, Daniel E., Indianapolis, Ind.

McDevitt-Fleming Co., Chattanooga, Tenn.

Meade & Co., Richard K., Baltimore, Md.

Olson, O., Jacksonville, Fla.

Parsons Eng. Co., Pine Bluff, Ark.

Robinson & Co., Dwight P., New York.

Rus Engineering Co., Pittsburgh, Pa.

Sanders & Sweeney, Anderson, S. C.

Smith Co., The, Birmingham, Ala.

Spiker & Loe, Atlanta, Ga.

Steel, Jr., J. A., Knoxville, Tenn.

Tucker & Laxton, Charlotte, N. C.

Turner, C. A. F., Minneapolis, Minn.

White Eng. Corp., The J. G., New York.

Wills, W. N., Spartanburg, S. C.

Roofing.

Kansas City Slate & Tile Roofing Co., Kansas City, Mo.

Sewerage and Water-Works.

Albright & Mebus, Philadelphia, Pa.

Archer & Co., E. T., Kansas City, Mo.

Ayres & Miller, Memphis, Tenn.

Black & Veatch, Kansas City, Mo.

Camp & Associates, E. V., Atlanta, Ga.

Caroline Eng. Co., Wilmington, N. C.

Fori, Bacon & Davis, Inc., New York.

Hills Co., George B., Jacksonville, Fla.

Klyce, B. H., Nashville, Tenn.

Ludlow Engineers, Winston-Salem, N. C.

McCalla & Co., J. B., Knoxville, Tenn.

Mees & Mees, Charlotte, N. C.

Olson, O., Jacksonville, Fla.

Parsons Engineering Co., Pine Bluff, Ark.

Posey, James, Baltimore, Md.

Sanders & Sweeney, Anderson, S. C.

Smith Co., The, Birmingham, Ala.

Tucker & Laxton, Charlotte, N. C.

Wallace & Crenshaw, Knoxville, Tenn.

White Eng. Corp., The J. G., New York.

White, Gilbert C., Durham, N. C.

Wills, W. N., Spartanburg, S. C.

Sewerage Disposal Plants.

Ludlow Engineers, Winston-Salem, N. C.

McCalla & Co., J. B., Knoxville, Tenn.

McCrary Co., J. B., Atlanta, Ga.

Parsons Eng. Co., Pine Bluff, Ark.

Posey, James, Baltimore, Md.

Spiker & Loe, Atlanta, Ga.

Turner, C. A. F., Minneapolis, Minn.

Textile Mills.

Long Co., M. A., Baltimore.

Main, Chas. T., Boston, Mass.

Sanders & Sweeney, Anderson, S. C.

Sirrine & Co., J. E., Greenville, S. C.

Ventilating and Heating.

Biggs Eng. Co., W. E., Knoxville, Tenn.

Markel, F. E., Atlanta, Ga.

Wiley & Wilson, Lynchburg, Va.

Engines.

Compressed Air.

Dake Engine Co., Grand Haven, Mich.

Cerillas.

Chuse Engine & Mfg. Co., Mattoon, Ill.

Shimshulding Co., Chester, Pa.

Vilmer Mfg. Co., Milwaukee, Wis.

Gas and Gasoline.

Bessemer Gas Engine Co., Grove City, Pa.

Climax Eng. Co., Clinton, Iowa.

Construction Machinery Co., Waterloo, Ia.

Domestic Engine & Pump Co., Shippensburg, Pa.

Fairbanks-Morse & Co., Chicago, Ill.

Foss Gas Engine Co., Springfield, O.

National Transit Pump & Mch. Co., Oil City, Pa.

Hoisting.

Mundy Hoisting Engine Co., J. S., Newark, N. J.

National Hoisting Eng. Co., Harrison, N. J.

Stroudsburg Engine Wks., Stroudsburg, Pa.

Marine.

Curtis Bay Copper & Iron Works, Inc., Baltimore, Md.

Murray Iron Works, Burlington, Ia.

Oil.

Anderson Fry & Mch. Co., Anderson, Ind.

Bessemer Gas Engine Co., Grove City, Pa.

Buckeye Machine Co., The Lima, O.

Fairbanks-Morse & Co., Chicago, Ill.

Foss Gas Engine Co., Springfield, O.

Ingersoll-Rand Co., New York, N. Y.

Kellogg, Robert P., New York, N. Y.

McMillan, A., Chicago, Ill.

National Transit Pump & Mch. Co., Oil City, Pa.

Power Mfg. Co., The, Marion, O.

Worthington Pump & Mch. Corp., N. Y.

Steam.

Allis-Chalmers Mfg. Co., Milwaukee, Wis.

Brownell Co., Dayton, O.

Caldwell & Co., E. R., Bradford, Pa.

Chuse Engine & Mfg. Co., Mattoon, Ill.

Cole Mfg. Co., R. D., Newnan, Ga.

Corinth Mch. Co., Corinth, Miss.

Erie City Iron Works, Erie, Pa.

Erie Pump & Eng. Wks., Medina, N. Y.

Harris Bros. Co., Chicago, Ill.

Houston, Stanwood & Gamble Co., Cincinnati, O.

Leffel & Co., James, Springfield, O.

Lombard Iron Wks. & Sup. Co., Augusta, Mo.

McMillan, A., Chicago, Ill.

Morris Mch. Wks., Baldwinville, N. Y.

Mott's Sons, Geo. F., York, Pa.

Murray Iron Wks. Co., Burlington, Iowa.

National Transit Pump & Mch. Co., Oil City, Pa.

Randall Machinery Co., Cincinnati, O.

Randall's Iron Works, Macon, Ga.

Steering.

Mundy Hoisting Engine Co., J. S., Newark, N. J.

Traction.

Austin-Western Road Mch. Co., Chicago.

ENVELOPES.

Smith Co., Oscar T., Baltimore, Md.

Excavating Machinery.

Austin Machinery Corp., Chicago, Ill.

Bay City Dredge Works, Bay City, Mich.

Bucyrus Co., South Milwaukee, Wis.

Erie Steam Shovel Co., (Ball Engine Co.), Erie, Pa.

Hayward Co., The, New York, N. Y.

Keystone Driller Co., Beaver Falls, Pa.

Marion Steam Shovel Co., Marion, O.

Monaghan Machine Co., Chicago, Ill.

Osgood Co., The, Marion, O.

Owen Bucket Co., The, Cleveland, O.

Excavators.

Cableway, Draglines.

Bucyrus Co., South Milwaukee, Wis.

Byers Machine Company, Ravenna, O.

Erie Steam Shovel Co., (Ball Engine Co.), Erie, Pa.

Lidgerwood Mfg. Co., New York, N. Y.

Marion Steam Shovel Co., Marion, O.

Monaghan Machine Co., Chicago, Ill.

Sauerman Bros., Chicago, Ill.

Trench.

Buckeye Traction Ditcher Co., Findlay, O.

Bucyrus Co., South Milwaukee, Wis.

Erie Steam Shovel Co., (Ball Engine Co.), Erie, Pa.

Hayward Co., The, New York, N. Y.

Keystone Driller Co., Beaver Falls, Pa.

Monaghan Machine Co., Chicago, Ill.

Exhaust Heads.

Abendroth & Root Mfg. Co., Newburgh, N. Y.

American Spiral Pipe Wks., Chicago, Ill.

Exit Devices.

Vonnegut Hardware Co., Indianapolis.

Exp. Metal Lath Reinforcing.

Southern Steel Prod. Co., Richmond, Va.

Virginia Steel Supply Co., Richmond, Va.

Wickwire-Spencer Steel Corp., New York.

Explosives.

Atlas Powder Co., Wilmington, Del.

Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.

Hercules Powder Co., Wilmington, Del.

Factory Columns.

Cordele Sash, Door & Lumber Co., Cordele, Ga.

Factory Sites. (Town and Railroad.)

(See Industrial, Agricultural and Commercial Opportunities.)

Birmingham Realty Co., Birmingham, Ala.

City Advertising Dept., Jacksonville, Fla.

Martien & Co., Wm., Baltimore, Md.

Merchants & Manufacturers Assn., Louisville, Ky.

Farm Wagons.

Acme Wagon Co., Emigsville, Pa.

Columbia Wagon & Body Co., Columbia, Pa.

Feed-Water Heaters and Purifiers.

American Water Softener Co., Phila., Pa.

Brownell Co., Dayton, O.

Erie City Iron Works Co., Erie, Pa.

Worthington Pump & Mch. Corp., N. Y.

Felt. (Building Sheathing.)

Barrett Co., New York, N. Y.

Fencing.

Field and Industrial. (Wire Woven.)

Amer. Fence Const. Co., New York.

American Steel & Wire Co., Chicago, Ill.

Anchor Post Iron Works, New York, N. Y.

Dufur & Co., Baltimore, Md.

New Jersey Wire Cloth Co., Trenton, N. J.

Stewart Iron Wks. Co., Inc., Cincinnati.

FERTILIZER MACHINERY.

Charleston Dry Dock & Mch. Co., Charleston, S. C.

Raymond Bros. Impact Pulv. Co., Chicago.

FILES.

Barnett Co., G. & H., Phila., Pa.

Nicholson File Co., Providence, R. I.

FILTERS.

For Domestic & Industrial Purposes.

American Water Softener Co., Phila., Pa.

International Filter Co., Chicago, Ill.

New York Continental Jewell Filtration Co., The, Nutley, N. J.

Roberts Filter Mfg. Co., Darby, Pa.

Scalfe & Sons Co., Wm. B., Pittsburgh.

FINANCING.

Electric Bond & Share Co., New York.

Miller & Co., G. L., Atlanta, Ga.

Fire Clay.

Ashland Fire Brick Co., Ashland, Ky.

Cambria Clay Products Co., Blackfoot, O.

Cannelton Clay Prod. Co., Cannelton, Ind.

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

FLUE LINING.

Owensboro Sewer Pipe Co., Owensboro, Ky.
Clay.
Oconee Br. & Tile Co., Milledgeville, Ga.

FLUSH-TANK SIPHONS.

Pacific Flush-Tank Co., New York, N. Y.

FORGES.

Buffalo Forge Co., Buffalo, N. Y.

FORGINGS.

Bethlehem Steel Co., Bethlehem, Pa.
Columbus Forge & Iron Co., The, Columbus, O.
Scranton Forging Co., Scranton, Pa.

Brass and Bronze.
Mueller Metals Co., Port Huron, Mich.

Railway and Industrial.
Laclede Steel Co., St. Louis, Mo.
Midvale Steel & Ordnance Co., Phila.

FORMS, STEEL.

For Concrete Culverts, Roads, Streets, Sidewalks, Tiles.
Blaw-Knox Co., Pittsburgh, Pa.
Concrete Steel Co., New York, N. Y.
Helstal Steel Form & Iron Co., Warren, O.

Curb.
Helstal Steel Form & Iron Co., Warren, O.
Curb and Gutter.
Helstal Steel Form & Iron Co., Warren, O.

FORM CLAMPS.

Concrete Steel Co., New York, N. Y.

FOUNDRY EQUIPMENT & SUPPLIES.

Hill & Griffith Co., The, Cincinnati, O.

FOUNDRY FACINGS. (Tale and Soapstone.)

Hill & Griffith Co., The, Cincinnati, O.

FOUNDRY AND MACHINE SHOPS.

Charleston Dry Dock & Mch. Co., Charleston, S. C.
Glasgow Pipe & Fdy. Co., Lynchburg, Va.
Golden's Fdy. & Mch. Co., Columbus, Ga.
Grainger & Co., Inc., Louisville, Ky.
Lombard Iron Wks. & Sup. Co., Augusta, S. C.
Ruppel Building Co., Chester, Pa.
Titus, R. E., Petersburg, Va.

FRAMES. (Automobile and Truck.)

Sharon Pressed Steel Co., Sharon, Pa.

FRONTS. (Stores.)

Zouri Drawn Metals Co., Chicago Hts., Ill.

FURNACE-DOOR ARCH.

Green Fire Brick Co., A. F., Mexico, Mo.

FURNACES.

For Industrial Purposes.
Smythe Co., The, S. E., Pittsburgh, Pa.

FURNACE LININGS.

Green Fire Brick Co., A. F., Mexico, Mo.

FURNITURE. (Shop.)

Western Tool & Mfg. Co., Springfield, O.

FUSES. (Electrical.)

Johns-Manville, Inc., H. W., New York.

GALVANIZED STEEL AND IRON.

Amer. Rolling Mill Co., Middletown, O.
Amer. Sheet & Tin Plate Co., Pittsburgh.
Falcon Steel Co., The, Niles, O.
McCalla Co., Harold, Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown.
Wheeling Steel Prod. Co., Wheeling, W. Va.
Wood Iron & Steel Co., Alan, Phila., Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

GALVANIZING KETTLES.

Wilfong Iron Wks. Co., Millard F., Phila.

GAS COMPRESSORS.

Ingersoll-Rand Co., New York, N. Y.

GASOLINE AND KEROSENE.

Empire Refineries, Inc., Tulsa, Okla.
Gulf Refining Co., Pittsburgh, Pa.
Sapulpa Refining Co., Tulsa, Okla.
Texas Co., The, New York, N. Y.

GAS PLANTS.

Morgan Construction Co., Worcester, Mass.

GAS PRODUCERS.

Morgan Construction Co., Worcester, Mass.
Smith Gas Engr. Co., Dayton, O.
Smythe Co., The, S. E., Pittsburgh, Pa.
Westinghouse El. & Mfg. Co., E. Pittsburgh.
Wood & Co., B. D., Philadelphia, Pa.

GATES. (Automatic Drainage.)

Armo Cul. & Plume Mfr. Asso., Chicago.

GEARS.

Caldwell & Son Co., H. W., Chicago.
De Laval Steam Turbine Co., Trenton, N. J.
Earle Gear & Mch. Co., The, Phila., Pa.
Fawcett Machine Co., Pittsburgh, Pa.
General Electric Co., Schenectady, N. Y.
Niles-Bement-Pond Co., New York, N. Y.
Harrington Reduction.
Fawcett Machine Co., Pittsburgh, Pa.

GEAR CUTTING.

Fawcett Machine Co., Pittsburgh, Pa.
Universal Machine Co., Baltimore, Md.

GEOLOGISTS.

Crow Inc., Waller, Chicago, Ill.
Frothing & Robertson, Richmond, Va.
M. O. & W. Engineering Corp., Norton, Va.

GLASS.

Plate, Etc.
Biswanger & Co., Memphis, Tenn.
Hires-Turner Glass Co., Washington, D. C.
Window.
American Window Glass Co., Pittsburgh.

GLUE. (Marine.)

Binney & Smith Co., New York, N. Y.

GRADERS.

Elevating.
Austin Mfg. Co., Chicago, Ill.
Turbine.
Koehring Co., Milwaukee, Wis.
GRAIN ELEVATOR SUPPLIES.
Caldwell & Son Co., H. W., Chicago.
Weller Mfg. Co., Chicago, Ill.

GRAPHITE.

Dixon Crucible Co., Jos., Jersey City, N. J.

GRATES AND GRATE BARS.

Armstrong Mfg. Co., Springfield, O.
Covington Mach. Co., Inc., Covington, Va.
Cleave-Brooks Co., Scranton, Pa.
Murray Iron Works Co., Burlington, Ia.
Thomas Grate Bar Co., Birmingham, Ala.
Vogt Mch. Co., Inc., Henry, Louisville.

GRATE BACKS.

Cannellon Clay Prod. Co., Cannellon, Ind.

GRATINGS. (Steel.)

Mitchell-Tappen Co., New York, N. Y.

GRAVEL. (Roading and Road.)

American Limestone Co., Knoxville, Tenn.
Arundel Corp., The, Baltimore, Md.
Boyle & Co., W. W., Beaufort, Va.
Friend & Co., Inc., Petersburg, Va.
Kirkpatrick Sand & Cement Co., Birmingham, Ala.
Petersburg Sand & Gravel Corp., Petersburg, Va.

GRAVITY CONVEYOR CHUTES.

Dow Co., Inc., The, Louisville, Ky.

GRAVITY ROLLER CONVEYORS.

Dow Co., Inc., The, Louisville, Ky.

GREASE.

Cook's Sons, Inc., Adam, New York.

GREASE CUPS.

Cook's Sons, Inc., Adam, New York.

Lukenheimer Co., The, Cincinnati, O.

GREASE AND LUBRICATING COMPOUNDS.

Borne-Schrymer Co., New York, N. Y.
Cook's Sons, Inc., Adam, New York.
Robinson & Son Co., Wm. C., Balto., Md.
Texas Co., The, New York, N. Y.

GRINDERS. (Gypsum, Limestone, Etc.)

Raymond Bros. Impact Pulv. Co., Chicago.
Williams Patent Crusher & Pulverizer Co., Chicago.

GRINDING MACHINERY. (Flexible Shaft.)

Strand & Co., N. A., Chicago, Ill.

GRINDING WHEELS.

Carborundum Co., Niagara Falls, N. Y.

GUNPOWDER.

Atlas Powder Co., Wilmington, Del.
Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.
Hercules Powder Co., Wilmington, Del.

HANGERS.

Doors.
Richards-Wilcox Mfg. Co., Aurora, Ill.

LINE SHAFT.

Wood's Sons Co., T. B., Chambersburg, Pa.

HARBOR IMPROVEMENTS.

Atlantic, Gulf & Pacific Co., New York.

HARDWARE. (Builders.)

Vonnegut Hardware Co., Indianapolis.

HEATERS. (Asphalt.)

Cumner & Son, F. D., Cleveland, O.

HEATING APPARATUS - ENGINEERS AND CONTRACTORS.

Allen Engr. & Mfg. Co., Savannah, Ga.
Beverly Heating Co., B. C., Richmond, Va.

Buffalo Forge Co., Buffalo, N. Y.
Grinnell Co., Providence, R. I.
Hammond Heating Co., Cincinnati, O.
Mott's Sons, Geo. F., York, Pa.

HOISTING MACHINERY.

Allen Engineering Co., Philadelphia, Pa.
Dake Engine Co., Grand Haven, Mich.
Lidgerwood Mfg. Co., New York, N. Y.
Mundy Hoisting Engine Co., J. S., Newark, N. J.
National Hoisting Eng. Co., Harrison, N. J.
Patterson Mfg. Co., Chattanooga, Tenn.
Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.
Stroudsburg Engine Wks., Stroudsburg, Pa.
United Iron Works, Kansas City, Mo.

HOISTS.

Air, Portable.
Sullivan Machinery Co., Chicago, Ill.
Chain.

Box & Co., Alfred, Inc., Phila., Pa.
Dake Engine Co., Grand Haven, Mich.
Reading Chain & Block Corp., Reading, Pa.
Wright Mfg. Co., Lisbon, O.

Electric.
Box & Co., Alfred, Inc., Phila., Pa.
Byers Machine Company, Ravenna, O.
Elect. Hoist & Derrick Co., Hog Island, Pa.
Flory Mfg. Co., S. Bangor, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Link-Belt Co., Philadelphia, Pa.
Mundy Hoisting Engine Co., J. S., Newark, N. J.

Patterson Mfg. Co., Chattanooga, Tenn.
Reading Chain & Block Corp., Reading, Pa.
Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.
United Iron Works, Kansas City, Mo.

Gasoline.
Byers Machine Company, Ravenna, O.
Domestic Engine & Pump Co., Shippensburg, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Patterson Mfg. Co., Chattanooga, Tenn.

Steam.
Amer. Cement Mch. Co., Inc., Keokuk, Ia.
Dake Engine Co., Grand Haven, Mich.
Lidgerwood Mfg. Co., New York, N. Y.
Mundy Hoisting Engine Co., J. S., Newark, N. J.

National Hoisting Eng. Co., Harrison, N. J.
Stroudsburg Engine Wks., Stroudsburg, Pa.
United Iron Works, Kansas City, Mo.

HOLLOW BUILDING TILE.

Chattanooga Sewer Pipe Works, Chattanooga, Tenn.
Oconee Br. & Tile Co., Milledgeville, Ga.
Williams Brick Co., F. Graham, Atlanta.

HOMES. (Fabricated.)

Minter Homes Co., Greenville, S. C.

HOOPS, BANDS, ETC. (Galvanized.)

McCalla Co., Harold, Philadelphia, Pa.

Pittsburgh Steel Co., Pittsburgh, Pa.

HOSE. (Rubber.)

Diamond Rubber Co., Akron, O.

Goodrich Rubber Co., B. F., Akron, O.

Goodyear Tire & Rubber Co., Akron, O.

HOTELS.

Murphy's Hotel, Richmond, Va.

Southern Hotel, The, Baltimore, Md.

HOUSES.

Industrial.
Minter Homes Co., Greenville, S. C.

Multiple Pressed Steel.
Truscon Steel Co., Youngstown, O.

HULLS. (Steel, for Boats and Barges.)

American Bridge Co., New York, N. Y.

Midland Barge Co., Midland, Pa.

HUMIDIFYING AND DRYING EQUIPMENT.

Grinnell Co., Providence, R. I.

HYDRANTS.

Bourbon Cop. & Brass Wks., Cincinnati.

Columbian Iron Wks., Chattanooga, Tenn.

Ludlow Valve Mfg. Co., Troy, N. Y.

Myers & Bros. Co., The, F. E., Ashland, O.

Wood & Co., B. D., Philadelphia, Pa.

HYDRAULIC GIANTS.

American Spiral Pipe Wks., Chicago, Ill.

HYDRAULIC MACHINERY.

Caldwell & Co., E. R., Bradford, Pa.

ICE CREAM FREEZERS. (Direct Expansion.)

Continental Machinery Co., Chicago, Ill.

ICE-MAKING MCHY. AND SUPPLIES.

Arctic Ice Machine Co., Canton, O.

Baker Ice Machine Co., Inc., Omaha.

Continental Machinery Co., Chicago, Ill.

Frick Co., Waynesboro, Pa.

Southern Ice Machine Co., Charlotte, N. C.

Triumph Ice Mach. Co., The, Cincinnati.

United Iron Works, Kansas City, Mo.

Vilger Mfg. Co., Milwaukee, Wis.

Vogt Mch. Co., Inc., Henry, Louisville.

York Mfg. Co., York, Pa.

INCORPORATORS. (Companies.)

Corporation Service Co., Wilmington, Del.
Delaware Reg. Trust Co., Wilmington.

INDUSTRIAL, AGRICULTURAL AND COMMERCIAL OPPORTUNITIES.

City Advertising Dept., Jacksonville, Fla.
Birmingham Realty Co., Birmingham, Ala.
Merchants & Manufacturers Assn., Louisville, Ky.

RAILROADS.

Atlanta & West Point R. R., Atlanta.
Central of Georgia Ry. Co., Savannah, Ga.
Model Land Company of the Flagler System, St. Augustine, Fla.

INJECTORS.

Jenkins Bros., New York, N. Y.
Lukenheimer Co., The, Cincinnati, O.
Randle Machinery Co., Cincinnati, O.

INSERTS. (For Concrete Walls, Cell-concrete.)

Concrete Steel Co., New York, N. Y.

INSTRUMENTS. (Electric Measuring.)

Weston Electrical Instr. Co., Newark, N. J.

INSULATING MATERIALS.

Continental Fibre Co., The, Newark, Del.
General Electric Co., Schenectady, N. Y.
Johns-Manville, Inc., H. W., New York.

INTER-COMMUNICATING SYSTEMS.

Automatic Electric Co., Chicago, Ill.

INVESTMENT SECURITIES.

Allyn & Co., A. C., Chicago, Ill.
Caldwell & Co., Nashville, Tenn.
Bell & Co., A. T., Toledo, O.

Campbell & Kinsey, Toledo, O.
Electric Bond & Share Co., New York.
Hanchett-Bond Co., The, Chicago, Ill.

Investment Securities Co., Chicago, Ill.

Mercantile Trust & Deposit Co., Balto.

Miller & Co., G. L., Atlanta, Ga.

Nurson & Co., John, Chicago, Ill.

Provident Savings Bank & Trust Co., Cincinnati, O.

Rosenstiel Co., The, Lewis S., Cincinnati.

Silverman Co., W. H., Cincinnati.

Slayton & Co., W. L., Toledo, O.

Title Guarantee & Trust Co., Cincinnati.

Wise & Co., Harold G., Houston, Texas.

IRON.

Allegheny Steel Co., Pittsburgh, Pa.

Oliver Iron & Steel Co., Pittsburgh, Pa.

Ryerson & Son, Jos. T., St. Louis and New York.

Tenn., C. I. & R. E. Co., Birmingham.

United Railway Supply Co., Birmingham.

United Drawn Steel Co., Beaver Falls, Pa.

Wood Iron & Steel Co., Alan, Phila., Pa.

IRON. (Ingr. For Culverts, Etc.)

Amer. Rolling Mill Co., Middletown, O.

IRRIGATING MACHINERY.

Ingersoll-Rand Co., New York, N. Y.

KEGS. (Oak & Gum.)

Chas. Beld's Sons, Inc., Norfolk, Va.

LADDERS. (Rolling.)

Myers & Bros. Co., The, F. E., Ashland, O.

LADLES.

Petroleum Iron Works Co., Sharon, Pa.

For Open Hearth Steel Furnaces.

Traswell Constr. Co., Midland, Pa.

LAMP GUARDS. (Wire.)

Hubbell Inc., Harvey, Bridgeport, Conn.

LAMP REFLECTORS.

Hubbell Inc., Harvey, Bridgeport, Conn.

LAMPS. Arc and Incandescent.

Douglas-Hill Electric Co., Wash., D. C.

Linotype.

Frink, Inc., I. P., New York, N. Y.

Vonnegut Hardware Co., Indianapolis.

LATH. (Metal.)

Edwards Mfg. Co., The, Cincinnati, O.

Nat. Pressed Steel Co., Massillon, O.

Southern Steel Prod. Co., Richmond, Va.

Virginia Steel Supply Co., Richmond, Va.

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

LIVESTOCK SPECIALISTS.

Moore Agricultural Service, New Orleans.

LOADING AND UNLOADING MCHY.

(Portable.)

Columbus Conveyor Co., Columbus, O.

Dow Co., Inc., The, Louisville, Ky.

Hume Mfg. Co., Geo., New York.

Jeffrey Mfg. Co., Columbus, O.

Portable Mchry. Co., Passaic, N. Y.

LOCKERS.

Steel.

Dexter Metal Mfg. Co., Camden, N. J.

Edwards Mfg. Co., The, Cincinnati, O.

Medart Mfg. Co., Fred., St. Louis, Mo.

LOCOMOTIVES.

Electric.

Whitcomb Co., Geo. D., Rochelle, Ill.

Gasoline.

Industrial Equipment Co., Minister, O.

Whitcomb Co., Geo. D., Rochelle, Ill.

Industrial.

Saber, Henry H., Norfolk, Va.

Chmar Mfg. Co., Corry, Pa.

Industrial Equipment Co., Minister, O.

Jeffrey Mfg. Co., Columbus, O.

Mid-Continent Eq. & Mchry. Co., St. Louis, Mo.

Porter Co., H. K., Pittsburgh, Pa.

Southern Iron & Equip. Co., Atlanta, Ga.

Mining.

Jeffrey Mfg. Co., Columbus, O.

Railway.

Georgia Car & Locomotive Co., Atlanta.

Porter Co., H. K., Pittsburgh, Pa.

Sherwood, E. C., New York, N. Y.

Southern Iron & Equip. Co., Atlanta, Ga.

Storage Battery.

Whitcomb Co., Geo. D., Rochelle, Ill.

LOGGING BLOCKS.

Lidgerwood Mfg. Co., New York, N. Y.

LOOMS AND WEAVING MCHY.

Crompton & Knowles Loom Works, Worcester, Mass.

Draper Corporation, Hopedale, Mass.

LUBRICANTS.

Borne-Schrymer Co., New York, N. Y.

Cook's Sons, Inc., Adam, New York.

Texaco Co., The, New York, N. Y.

Graphite.

Dixon Crucible Co., Jos., Jersey City.

LUMBER.

Cabinet.

McEwen Lumber Co., Norfolk, Va.

Callings, Flooring, Siding.

Bacon & Sons, S., Savannah, Ga.

Carolina Portland Cement Co., Charleston, S. C.

Central Coal & Coke Co., Kansas City, Mo.

Great Southern Lbr. Co., Bogalusa, La.

Kirby-Bonner Lumber Co., Houston, Tex.

Kirkpatrick Lumber & Timber Co., Birmingham, Ala.

Long-Bell Lumber Co., Kansas City, Mo.

Southern Cypress Manufacturers Assn., New Orleans, La.

Wier Lumber Co., B. W., Houston, Tex.

Crescoted.

American Crescote Wks., New Orleans, La.

American Crescote Co., Bogalusa, La.

Crescoted Materials Co., Inc., New Orleans.

Eppinger & Russell Co., New York, N. Y.

Gulfport Crescoting Co., Gulfport, Miss.

Long-Bell Lumber Co., Kansas City, Mo.

Pensacola Crescoting Co., Pensacola, Fla.

Savannah Crescoting Co., Inc., The, Port Wentworth, Savannah, Ga.

Cypress.

Black River Cypress Co., Gable, S. C.

Blake Lbr. Co., Thos. W., Houston, Tex.

Central Gulf Lumber Co., Inc., New Orleans, La.

Gum.

Eastman-Gardner Hardwood Co., Laurel, Miss.

Hardwood.

Blake Lbr. Co., Thos. W., Houston, Tex.

McEwen Lumber Co., Norfolk, Va.

Heavy Construction Pitch.

Pine, Etc.

Bacon & Sons, S., Savannah, Ga.

Carolina Portland Cement Co., Charleston, S. C.

Central Coal & Coke Co., Kansas City, Mo.

Central Gulf Lumber Co., Inc., New Orleans, La.

Exchange Sawmills Sales Co., Kansas City, Mo.

Great Southern Lbr. Co., Bogalusa, La.

Industrial Lumber Co., Elizabeth, La.

Kirby-Bonner Lumber Co., Houston, Tex.

Kirkpatrick Lumber & Timber Co., Birmingham, Ala.

Long-Bell Lumber Co., Kansas City, Mo.

McEwen Lumber Co., Norfolk, Va.

Southern Cypress Manufacturers Assn., New Orleans, La.

Stanley Lumber Co., H. F., Jackson, Miss.

Wier Lumber Co., B. W., Houston, Tex.

Poplar.

Eastman-Gardner Hardwood Co., Laurel, Miss.

Steel.

Hot Pressed Steel Co., Massillon, O.

Presson Steel Co., Youngstown, O.

Tuselo.

Southern Cypress Manufacturers Assn., New Orleans, La.

White and Red Oak.

Eastman-Gardner Hardwood Co., Laurel, Miss.

White Pine.

McEwen Lumber Co., Norfolk, Va.

Yellow Pine.

American Lumber Co., Laurel, Miss.

Bacon & Sons, S., Savannah, Ga.

Blake Lbr. Co., Thos. W., Houston, Tex.

Carolina Portland Cement Co., Charleston, S. C.

Central Coal & Coke Co., Kansas City, Mo.

Central Gulf Lumber Co., Inc., New Orleans, La.

Eppinger & Russell Co., New York, N. Y.

Exchange Sawmills Sales Co., Kansas City, Mo.

Great Southern Lbr. Co., Bogalusa, La.

Industrial Lumber Co., Elizabeth, La.

Kirby-Bonner Lumber Co., Houston, Tex.

Kirkpatrick Lumber & Timber Co., Birmingham, Ala.

Long-Bell Lumber Co., Kansas City, Mo.

McEwen Lumber Co., Norfolk, Va.

Stanley Lumber Co., H. F., Jackson, Miss.

Wier Lumber Co., B. W., Houston, Tex.

MACHINERY. (Special.)

Bethlehem Steel Co., Bethlehem, Pa.

Bliss Co., E. W., Brooklyn, N. Y.

Universal Machine Co., Baltimore, Md.

MACHINERY AND SUPPLIES. (New and Second-hand.)

Beckerley & Truher, Baltimore, Md.

Brooks Supply Co., Beaumont, Tex.

Carey Co., Thos. F., New York, N. Y.

Castle & Wilson, Pittsburgh, Pa.

Charleston Industrial Corp., Nitro, W. Va.

Marine & Belling & Mchry. Co., Cleveland.

Coleman-Spohrer Inc., Phila., Pa.

Davis, J. F., Chicago, Ill.

Dempster Eq. Co., Knoxville, Tenn.

Gregory Electric Co., Chicago, Ill.

Halford-Neufeld Steel Co., Bucyrus, O.

Harris Bros. Co., Chicago, Ill.

Hemphill & Co., J. L., Hoboken, N. J.

Holmes & Co., Henry A., Phila., Pa.

Hollander Eq. Co., New York, N. Y.

Industrial Plants Corp., New York, N. Y.

Kehoe, Robert F., New York, N. Y.

King, Philip F., New York, N. Y.

Klein & Co., Nathan, New York, N. Y.

Lehman, Chas. T., Birmingham, Ala.

McMillan, A., Chicago, Ill.

Mallory Machinery Corp., Baltimore, Md.

Marine Metal & Supply Co., New York.

Mayer, F., Chicago, Ill.

Mehan Co., Andrew I., Phila., Pa.

Miles Machinery Co., Saginaw, Mich.

Motter's Sons, Geo. F., York, Pa.

Nashville Ind. Corp., Jacksonville, Tenn.

O'Brien Mchry. Co., Phila., Pa.

Pfannmuller Engr. Co., Chicago, Ill.

Plan & Contractors' Sup. Co., New York.

Prentiss & Co., Inc., Henry, New York.

Ryerson & Son, Jos. T., St. Louis and New York.

Sales Corp., The, Washington, D. C.

Greger Machine Tool Co., Atlanta, Ga.

Seyfert's Sons, Inc., L. F., Phila., Pa.

South Side Fdy. & Mch. Wks., Charleston, W. Va.

Tart, Louis A., Inc., Baltimore, Md.

Thompson, Pratt, Baltimore, Md.

Toomey, Frank, Inc., Philadelphia, Pa.

Weiss, B. M., Philadelphia.

Ward, Boggs & Co., Newark, N. J.

Wilson Tank & Culbert Co., San Antonio, Tex.

Zelnicke Sup. Co., W. A., St. Louis.

MACHINE TOOLS.

Houston, Stanwood & Gamble Co., Cincinnati, O.

Niles-Bement-Pond Co., New York, N. Y.

Ryerson & Son, J. T., St. Louis & New York.

Reger Machine Tool Co., Atlanta, Ga.

Wickes Machinery Co., Jersey City, N. J.

MAGNETS. (Lifting.)

Browning Co., Cleveland, Ohio.

Electric Controller & Mfg. Co., Cleveland.

MAGNETIC SEPARATORS.

Buchanan Co., Inc., C. G., New York.

Paxson Co., J. W., Philadelphia, Pa.

MAIL CHUTES.

Cutler Mail Chute Co., Rochester, N. Y.

MAINTENANCE. (Building.)

Trucon Laboratories, The, Detroit, Mich.

MARBLE. (Artificial for Cafeterias, etc.)

Carthage Marble & White Limestone Co., Carthage, Mo.

MARQUE.

Probert Sheet Metal Co., Cincinnati.

METAL-CUTTING MACHINES.

Atkins & Co., Inc., E. C., Indianapolis, Ind.

Racine Tool & Mch. Co., Racine, Wis.

METAL WORKING MACHINERY.

Bliss Co., E. W., Brooklyn, N. Y.

American District Steam Co., North Tonawanda, N. Y.

Electrical Measuring.

Weston Electrical Instr. Co., Newark, N. J.

MICROMETERS, CALIPERS, ETC.

Starrett Co., L. S., Athol, Mass.

MILL MACHINERY AND SUPPLIES.

Bailey-Lebby Co., Charleston, S. C.

Kries & Sons Co., Henry A., Balto., Md.

Lombard Iron Wks. & Sup. Co., Augusta, Ga.

MILL WORK. (Lumber, All Kinds.)

Bacon & Sons, A. S., Savannah, Ga.

Cordele Bash, Door & Lumber Co., Cordele, Ga.

Morgan Millwork Co., Baltimore, Md.

MINING MACHINERY.

Jeffrey Mfg. Co., Columbus, O.

McLanahan-Stone Mch. Co., Hollidaysburg, Pa.

Traylor Engr. & Mfg. Co., Allentown, Pa.

MIXERS.

Concrete.

Amer. Cement Mch. Co., Inc., Keokuk, Ia.

Austin Mchry. Corp., Chicago, Ill.

Blaytons Mfg. Co., Cambridge Springs, Pa.

Chain Belt Co., Milwaukee, Wis.

Construction Machinery Co., Waterloo, Ia.

Jaeger Machine Co., The, Columbus, O.

Koehring Co., Milwaukee, Wis.

Republic Iron Works, Tecumseh, Mich.

Service Equipment Co., Philadelphia.

Southern Steel Prod. Co., Richmond, Va.

Hot.

Koehring Co., Milwaukee, Wis.

MOLDS. (Concrete Pipe).

Universal Concrete Products Co., New Martinsville, W. Va.

MORTAR COLORS.

Chattanooga Paint Co., Chattanooga.

MOTORS. (Electric.)

Clark Jr. Electric Co., Jas., Louisville, Ky.

Electric Controller & Mfg. Co., Cleveland.

Ideal Electric & Mfg. Co., Mansfield, O.

Triumph Electric Co., Cincinnati, O.

Wagner Electric Corp., St. Louis, Mo.

Westinghouse El. & Mfg. Co., E. Pitts.

MOTOR TRUCKS.

General Motors Truck Co., Pontiac, Mich.

Packard Motor Car Co., Detroit, Mich.

MOTOR-TRUCK TIRES.

Kelly-Springfield Tire Co., New York.

MUSIC WIRE.

American Steel & Wire Co., Chicago, Ill.

NAILS.

Cut.

Wheeling Steel Prod. Co., Wheeling, W. Va.

Wire All Kinds.

Pittsburgh Steel Co., Pittsburgh, Pa.

McCalla Co., Harold, Philadelphia, Pa.

NAILS AND SPIKES.

Youngtown Sheet & Tube Co., Youngtown, O.

NAPHTHAS. (Paint.)

Texhoma Oil & Refining Co., Wichita Falls, Tex.

NOZZLES. (Aerating, Sprinkler, etc.)

Buffalo Forge Co., Buffalo, N. Y.

NUTS. (Cold Punched.)

Oliver Iron & Steel Co., Pittsburgh, Pa.

OIL-BURNING SYSTEMS.

Bethlehem Shipbuilding Corp., Bethlehem.

OIL, FUEL AND GAS.

Empire Refineries, Inc., Tulsa, Okla.

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

PHOTO-ENGRAVERS.

Alpha Photo-Engraving Co., Baltimore.

PHOTOGRAPHING APPARATUS. (Let-

ters, Legal Papers, etc.)

Photostat Corp., Rochester, N. Y.

PIG-IRON.

Alabama Co., The, Birmingham, Ala.
Bethlehem Steel Co., Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, O.
Hammond-Byrd Iron Co., Birmingham.
Pittsburgh Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Tenn. C. J. & R. R. Co., Birmingham.

PILE DRIVERS. (Locomotive.)

Bucyrus Co., South Milwaukee, Wis.
National Hoisting Eng. Co., Harrison, N. J.

PILING.

Crescoted.
American Crescoted Wks., New Orleans.
American Crescoting Co., Bogalusa, La.
Crescoted Materials Co., Inc., New Orleans.
Eppinger & Russell Co., New York, N. Y.
Pensacola Crescoting Co., Pensacola, Fla.
Savannah Crescoting Co., Inc., The Port
Wentworth, Savannah, Ga.
Southern Crescoting Co., Ltd., Sildell, La.

Cypress.

Black River Cypress Co., Gables, S. C.

PILLOW BLOCKS.

Goldens' Fdy. & Mch. Co., Columbus, Ga.
Medart Co., The, St. Louis, Mo.
Wood's Sons Co., T. B., Chambersburg, Pa.

PIPE.

Grant Supply Co., Chas. J., Philadelphia.
National Tube Co., Pittsburgh, Pa.
Youngstown Sheet & Tube Co., Youngs-
town, O.
Wheeling Steel Prod. Co., Wheeling, W.
Va.

Cast Iron.

American C. I. Pipe Co., Birmingham.
Central Foundry Co., The, New York.
Glanorgan Pipe & Fdy. Co., Lynchburg,
Va.
Nat'l Cast Iron Pipe Co., Birmingham.
U. S. Cast Iron Pipe & Foundry Co.,
Burlington, N. J.
Wood & Co., R. D., Philadelphia, Pa.

Coll.

Frick Co., Waynesboro, Pa.
York Mfg. Co., York, Pa.

Culvert.

Armco Culvert & Flume Mfgs. Assn.,
Chicago, Ill.
Canton Culvert & Silo Co., Canton, O.

Dredge.

Lancaster Iron Works, Inc., Lancaster, Pa.

Iron and Steel.

Ryerson & Son, Jos. T., St. Louis and
New York.

Riveted.

Abendroth & Root Mfg. Co., Newburgh,
N. Y.
Petroleum Iron Works Co., Sharon, Pa.

Second-Hand.

Brooks Supply Co., Beaumont, Tex.
Central Pipe & Supply Co., Charleston,
W. Va.
Grant Supply Co., Chas. J., Philadelphia.
Griffith, Frank, Philadelphia, Pa.
Marine Metal & Supply Co., New York.
Pipe & Contractors' Sup. Co., New York.

Spiral Riveted.

Abendroth & Root Mfg. Co., Newburgh,
N. Y.
American Spiral Pipe Wks., Chicago, Ill.

Steel.

National Tube Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown,
O.
Wheeling Steel Prod. Co., Wheeling, W.
Va.
Youngstown Sheet & Tube Co., Youngs-
town, O.

Wood.

Michigan Pipe Co., Bay City, Mich.
Standard Wood Pipe Co., Williamsport,
Pa.

Wyckoff & Son Co., A., Elmira, N. Y.

Wrought Iron.

Youngstown Sheet & Tube Co., Youngs-
town, O.

PIPE BENDS AND HEADERS.

Grinnell Co., Providence, R. I.

PIPE FITTINGS.

American C. I. Pipe Co., Birmingham.
Crane Co., Chicago, Ill.
Griffith, Frank, Philadelphia, Pa.
Grinnell Co., Providence, R. I.
Kries & Sons Co., Henry A., Balto., Md.
Lunscheimer Co., The, Cincinnati, O.
National C. I. Pipe Co., Birmingham.

PIPE UNIONS AND JOINTS.

Dart Mfg. Co., E. M., Providence, R. I.

PIPING CONTRACTORS.

Crawford & Slaten, Atlanta, Ga.

PITCH.

Barrett Co., New York, N. Y.

PLATES.

Steel.
Allegheny Steel Co., Pittsburgh, Pa.
Bethlehem Shipbuilding Corp., Bethlehem.
Bethlehem Steel Co., Bethlehem, Pa.
Blaw-Knox Co., Pittsburgh, Pa.
Cincinnati Iron & Steel Co., Cincinnati.
Midvale Steel & Ordnance Co., Phila.
Republic Iron & Steel Co., Youngstown, O.
Ritter-Conley Co., Pittsburgh, Pa.
Ryerson & Son, Jos. T., St. Louis and
New York.
Wood, Iron & Steel Co., Alan, Phila.

Steel Tunnel Liner.

Truscon Steel Co., Youngstown, Ohio.

PLAYGROUND APPARATUS.

Medart Mfg. Co., Fred., St. Louis, Mo.

PNEUMATIC TOOLS.

Independent Pneumatic Tool Co., Chicago.

POLES.

Crescoted.
American Crescoted Wks., New Orleans.
American Crescoting Co., Bogalusa, La.
Crescoted Materials Co., Inc., New Orleans.
Savannah Crescoting Co., Inc., The Port
Wentworth, Savannah, Ga.
Southern Wood Preserving Co., Atlanta.

Cypress.

Black River Cypress Co., Gables, S. C.

Tubular Steel.

National Tube Co., Pittsburgh, Pa.

POLISHING MCHY. (Wheels, Blocks.)

Carborundum Co., Niagara Falls, N. Y.

PORTABLE HOUSES.

Metal.
Maryland Metal Building Co., Baltimore.

Wooden.

Minter Home Corp., Huntington, W. Va.

POSTS. (Cast Iron.) (Railway and

Highway.)

U. S. Cast Iron Pipe & Foundry Co.,
Burlington, N. J.

POWDER. (Cleaning.)

India Alkali Works, Boston, Mass.

POWER PIPING.

Grinnell Co., Providence, R. I.

POWER TRANSMISSION MCHY.

American Pulley Co., Philadelphia, Pa.
Bailey-Lobby Co., Charleston, S. C.
Caldwell & Son Co., Inc., W. E., Louisville, Ky.
Crescon-Morris Co., Philadelphia, Pa.
Davis Foundry & Mch. Wks., Rome, Ga.
Goldens' Fdy. & Mch. Co., Columbus, Ga.
Jones & Laughlin Steel Co., Pittsburgh.
Link-Belt Co., Philadelphia, Pa.
Medart Co., The, St. Louis, Mo.
More Chain Co., Itasca, N. Y.
Schofield's Iron Works, Macon, Ga.
Smith-Courtney Co., Richmond, Va.
Weller Mfg. Co., Chicago, Ill.
Wood's Sons Co., T. B., Chambersburg, Pa.

PRESERVATIVE. (Wood.)

Barrett Co., The, New York, N. Y.

PRESSED STEEL PARTS.

Sharon Pressed Steel Co., Sharon, Pa.

PRESSES.

Balling, Cottonseed Oil.
Hydraulic and Power.
Bauer Bros. Co., The, Springfield, O.
Cardwell Machine Co., Richmond, Va.
Continental Gln Co., Birmingham, Ala.
Dunning & Boschert Press Co., Syracuse.
Ripley Fdy. & Mch. Co., Ripley, O.

Metal Stamping.

Bliss Co., E. W., Brooklyn, N. Y.

Sewer Pipe & Tile.

Taplin-Rice-Clerkin Co., Akron, O.

PRINTERS. (Book, Catalog, Job, etc.)

Fleet-McGraw & Co., Inc., Richmond, Va.
Cusum-McGraw Co., Baltimore, Md.
Larow Printing Company, Knoxville, Tenn.
Smith Co., The, Oscar T., Baltimore, Md.
Young & Selden Co., Baltimore, Md.

PULLEYS.

Friktion Clutch.
Caldwell & Son Co., H. W., Chicago, Ill.
Caldwell & Son Co., Inc., W. E., Louisville, Ky.
Crescon-Morris Co., Philadelphia, Pa.
Medart Co., The, St. Louis, Mo.
Wood's Sons Co., T. B., Chambersburg, Pa.

Steel Rim.

American Pulley Co., Philadelphia, Pa.
Medart Co., The, St. Louis, Mo.

Wood Split.

Caldwell & Son Co., H. W., Chicago, Ill.
Medart Co., The, St. Louis, Mo.
Reeves Pulley Co., Columbus, Ind.

PULLEYS, SHAFTING AND HANGERS.

American Pulley Co., The, Phila., Pa.
Caldwell & Son Co., H. W., Chicago, Ill.
Crescon-Morris Co., Philadelphia, Pa.
Goldens' Fdy. & Mch. Co., Columbus, Ga.
Jones & Laughlin Steel Co., Pittsburgh.
Medart Co., The, St. Louis, Mo.
Wood's Sons Co., T. B., Chambersburg, Pa.

PULVERIZERS.

Grunders Pat. Crusher & Pul. Co., St.
Louis.
McLanahan-Stone Mch. Co., Hollidaysburg,
Pa.
Raymond Bros Impact Pulv. Co., Chicago.
Traylor Engr. & Mfg. Co., Allentown, Pa.
Williams Patent Crusher & Pulverizer Co.,
Chicago.

PUMPING MACHINERY.

Cameron Steam Pump Works, A. S.,
New York, N. Y.
Carter Co., Ralph B., New York, N. Y.
Cook, A. D., Lawrenceburg, Ind.
Domestic Engine & Pump Co., Shippens-
burg, Pa.
Earle Gear & Machine Co., Phila., Pa.
Emerson Pump & Valve Co., Inc., Alex-
andria, Va.
Ingersoll-Rand Co., New York, N. Y.
Keystone Driller Co., Beaver Falls, Pa.
Layne & Bowler Co., Memphis, Tenn.
McGowan Co., John H., Cincinnati, O.
Moffatt Mch. Mfg. Co., Charlotte, N. C.
Myers & Bro. Co., The, F. E., Ashland, O.
National Transit Pump & Mch. Co., Oil
City, Pa.
Penna. Pump & Comp. Co., Easton, Pa.
Platt Iron Works, Dayton, O.
Pulsometer Steam Pump Co., New York.
Reilly Mfg. Co., J. J., Louisville, Ky.
Rider-Ericson Engine Co., New York.
Snyder Pump & Well Co., Richmond.
Traylor Engr. & Mfg. Co., Allentown, Pa.
Va. Mch. & Well Co., Richmond, Va.
Wood & Co., R. D., Philadelphia, Pa.
Worthington Pump & Mch. Corp., N. Y. C.

PUMPING OUTFITS. (Diaphragm.)

Carter Co., Ralph B., New York, N. Y.
Construction Machinery Co., Waterloo, Ia.
Domestic Engine & Pump Co., Shippens-
burg, Pa.

PUMPS.

Domestic Engine & Pump Co., Shippens-
burg, Pa.
Fairbanks-Morse & Co., Chicago, Ill.

Air.

Manistee Iron Works Co., Manistee, Mich.

Air Lift.

Ingersoll-Rand Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

Asphalt and Road Oil.

Kinney Mfg. Co., Boston, Mass.
Northern Fire Apparatus Co., Minneapolis.

Boiler Feed.

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Buffalo Steam Pump Co., Buffalo, N. Y.
De Laval Steam Turbine Co., Trenton,
N. J.
Earle Gear & Machine Co., Phila., Pa.
Ingersoll-Rand Co., New York, N. Y.
Keystone Driller Co., Beaver Falls, Pa.
Layne & Bowler Co., Memphis, Tenn.
McGowan Co., John H., Cincinnati, O.
Moffatt Mch. Mfg. Co., Charlotte, N. C.
Myers & Bro. Co., The, F. E., Ashland, O.
Reilly Mfg. Co., J. J., Louisville, Ky.
Worthington Pump & Mch. Corp., N. Y.

Centrifugal.

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Buffalo Steam Pump Co., Buffalo, N. Y.
Carter Co., Ralph B., New York, N. Y.
Charleston Industrial Corp., Nitro, W. Va.
De Laval Steam Turbine Co., Trenton,
N. J.

Domestic Engine & Pump Co., Shippens-
burg, Pa.
Earle Gear & Machine Co., Phila., Pa.
Erie Pump & Engine Wks., Medina, N. Y.
Goulds Mfg. Co., Seneca Falls, N. Y.
Keystone Driller Co., Beaver Falls, Pa.
Manistee Iron Works Co., Manistee, Mich.
Morris Mch. Wks., Baldwinville, N. Y.
Nashville Ind. Corp., Jacksonville, Tenn.
Penna. Pump & Comp. Co., Easton, Pa.
Platt Iron Works, Dayton, O.
Rider-Ericson Engine Co., New York.
Wood & Co., R. D., Philadelphia, Pa.
Worthington Pump & Mch. Corp., N. Y.

Deep Well.

Carter Co., Ralph B., New York, N. Y.
Cook, A. D., Lawrenceburg, Ind.
Domestic Engine & Pump Co., Shippens-
burg, Pa.
Ingersoll-Rand Co., Inc., New York, N. Y.
Layne & Bowler Co., Memphis, Tenn.
Keystone Driller Co., Beaver Falls, Pa.
Rider-Ericson Engine Co., New York.
United Iron Works, Kansas City, Mo.

Dredging.

Erie Pump & Eng. Wks., Medina, N. Y.
Marion Steam Shovel Co., Marion, O.
Wood & Co., R. D., Philadelphia, Pa.
Worthington Pump & Mch. Corp., N. Y.

Fire.

Earle Gear & Mch. Co., Phila., Pa.
Northern Fire Apparatus Co., Minneapolis.

Gasoline Measuring.

Wayne Tank & Pump Co., Fort Wayne, Ind.

Hydraulic.

Cameron Steam Pump Wks., A. S., N. Y.
Cardwell Machine Co., Richmond, Va.
Carter Co., Ralph B., New York, N. Y.
Charleston Industrial Corp., Nitro, W. Va.
Dunning & Boschert Press Co., Syracuse.
Goulds Mfg. Co., Seneca Falls, N. Y.
Ingersoll-Rand Co., New York, N. Y.
Nashville Ind. Corp., Jacksonville, Tenn.
Worthington Pump & Mch. Corp., N. Y.

Power.

Domestic Engine & Pump Co., Shippens-
burg, Pa.
Dunning & Boschert Press Co., Syracuse.
McGowan Co., John H., Cincinnati, O.
National Transit Pump & Machine Co.,
Oil City, Pa.
Northern Fire Apparatus Co., Minneapolis.
Worthington Pump & Mch. Corp., N. Y.

Rotary, Water, Chemicals, Etc.

Northern Fire Apparatus Co., Minneapolis.

Steam.

Buffalo Steam Pump Co., Buffalo, N. Y.
Cook, A. D., Lawrenceburg, Ind.
Emerson Pump & Valve Co., Inc., Alex-
andria, Va.
Ingersoll-Rand Co., New York, N. Y.
McGowan Co., John H., Cincinnati, O.
National Transit Pump & Mch. Co., Oil
City, Pa.
Penna. Pump & Comp. Co., Easton, Pa.
Platt Iron Works, Dayton, O.
Pulsometer Steam Pump Co., New York.
Randle Machinery Co., Cincinnati, O.
Reilly Mfg. Co., J. J., Louisville, Ky.
Snyder Pump & Well Co., Richmond, Va.
Worthington Pump & Mch. Corp., N. Y.

Triplex Power

Domestic Engine & Pump Co., Shippens-
burg, Pa.
National Transit Pump & Machine Co.,
Oil City, Pa.
Platt Iron Works, Dayton, O.
Traylor Engr. & Mfg. Co., Allentown, Pa.

Turbine.

Layne & Bowler Co., Memphis, Tenn.
Platt Iron Works, Dayton, O.

Vacuum.

Allis-Chalmers Mfg. Co., Milwaukee.
Ingersoll-Rand Co., New York, N. Y.
Manistee Iron Works Co., Manistee, Mich.
Penna. Pump & Comp. Co., Easton, Pa.
Sullivan Machinery Co., Chicago, Ill.
Worthington Pump & Mch. Corp., N. Y.

Water-Works.

Goulds Mfg. Co., Seneca Falls, N. Y.
McGowan Co., John H., Cincinnati, O.
Manistee Iron Works Co., Manistee, Mich.
Worthington Pump & Mch. Corp., N. Y.

PUNCHING AND SHEARING MCHY.

Bliss Co., E. W., Brooklyn, N. Y.
Buffalo Forge Co., Buffalo, N. Y.
Covington Mch. Co., Inc., Covington, Va.

RAILINGS AND GRILLS, IRON AND

BRASS. (Banks and Offices.)

Dow Co., Inc., The, Louisville, Ky.
Dufur & Co., Baltimore, Md.
Dufur, Baggett & Co., Baltimore, Md.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Meyers Mfg. Co., Fred. J., Hamilton, O.
Wilson Co., The, Greenville, S. C.

RAILROADS. (Offering Industrial, Agri-

cultural and Commercial Opportunities.)

Atlanta & West Point R. R., Atlanta.
Central of Georgia Rwy. Co., Savannah.
Model Land Company of the Flagler Sys-
tem, St. Augustine, Fla.
Texas & Pacific Railway, Dallas, Texas.

RAILROAD CARS. (Box, Flat, Gondola.)

Houston Railway Car Co., Houston, Tex.
Wilson & Co., E. H., Philadelphia, Pa.

RAILROAD DITCHERS.

Marion Steam Shovel Co., Marion, O.

RAILROAD EQUIPMENT AND SUP-

PLIES. (New and Second-hand.)

Amer. Frog & Switch Co., Hamilton, O.
Baber, Henry H., Norfolk, Va.
Bailey-Lobby Co., Charleston, S. C.
Benjamin Eot. Co., Harry, St. Louis, Mo.
Birmingham Rail & Loco. Co., Birming-
ham, Ala.
Bridwell Co., Inc., W. C., Baltimore, Md.
Cary Co., Thos. F., New York, N. Y.
Charleston Industrial Corp., Nitro, W. Va.
Cincinnati Frog & Switch Co., Cincinnati.
Cohen & Son, Louis, Wilkes Barre, Pa.
Fairbanks, Morse & Co., Chicago, Ill.
Foster Co., H. M., Baltimore, Md.

In v**General**

George
Harris B.
Houston
Hyman-N.
Kilby F.
Niles-B.
Potterston
Robinson
Singer I.
Southern
Turner C.
Weir Fro.
West W.
Wilson
Wood, P.
Zeisler

RAILROAD

Amer. F.
Bethlehem
Bridwell
Cincinnati
Frank, M.
Kilby F.
Niles-B.
National
Robinson
Wood, P.
Weir Fro.

RAILS.

Baber, H.
Benjamin
Bridwell
Cary Co.
Cohen &
Foster C.
Frank, M.
Hyman-N.
Loris &
Lindholm
Mid-Cent.
Louis
Mills C.
Nashville
National
Potterston
Robinson
Sherwood
Singer I.
Southern
Tenn. C.
United B.
West Virg.
Zeisler

RAILWAY

Bridwell C.

REFLECTOR

Frank, I.
Husbell I.

REFRIGER-

RATUS.

Artie Ice
Baker Ice
Centennial
Kebbe, B.
Southern
Triumph I.
Vilter Mfg.
Vogt Mch.
York Mfg.

REINFOR-

crete Ro.

Concrete T.

National I.

RINGS

Universal

RIVER

VENTS.

etc.)

Atlantic, C.

Fanulation

RIVETS.

Hammond

Hubbell, I.

Waterbury

ROAD AND

Barber Asp.

Barrett Co.

Birmingham

Bosley & C.

Good Road

Hampton B.

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

General Electric Co., Schenectady, N. Y.
Georgia Car & Loco. Co., Atlanta, Ga.
Harris Bros. Co., Chicago, Ill.
Houston Railway Car Co., Houston, Tex.
Hyman-Michaels Co., Chicago, Ill.
Kilby Frog & Switch Co., Birmingham.
Niles-Bement-Pond Co., New York, N. Y.
Pottstown Steel Co., Douglassville, Pa.
Robinson & Orr, Pittsburgh, Pa.
Singer Iron & Steel Co., Houston, Tex.
Southern Iron & Equip. Co., Atlanta, Ga.
Turner Co., C., Chattanooga, Tenn.
Weir Frog Co., Cincinnati, O.
West Virginia Ball Co., Huntington, W. Va.
Wilson & Co., E. H., Philadelphia, Pa.
Wilson Machinery Co., St. Louis, Mo.
Wood, P. W., New Orleans, La.
Zelicker Supply Co., W. A., St. Louis.

RAILROAD FROGS AND SWITCHES.

Amer. Frog & Switch Co., Hamilton, O.
Bethlehem Steel Co., Bethlehem, Pa.
Bridgell Co., Inc., W. C., Baltimore, Md.
Cincinnati Frog & Switch Co., Cincinnati.
Frank, M. K., Pittsburgh, Pa.
Kilby Frog & Switch Co., Birmingham.
National Steel Ball Co., St. Louis, Mo.
Robinson & Orr, Pittsburgh, Pa.
Singer Iron & Steel Co., Houston, Tex.
Southern Iron & Equip. Co., Atlanta, Ga.
Tenn. C. I. & B. R. Co., Birmingham.
United Railway Supply Co., Birmingham.
West Virginia Ball Co., Huntington, W. Va.
Zelicker Supply Co., W. A., St. Louis.

RAILS. (Steel.)

Baber, Henry H., Norfolk, Va.
Benjamin Ekt. Co., Harry, St. Louis, Mo.
Bethlehem Steel Co., Bethlehem, Pa.
Bridgell Co., Inc., W. C., Baltimore, Md.
Cohen & Son, New York, N. Y.
Cory & Son, Louisville, Ky.
Foster Co., H. M., Baltimore, Md.
Frank, M. K., Pittsburgh, Pa.
Hyman-Michaels Co., Chicago, Ill.
Lewis & Co., Henry, Philadelphia, Pa.
Lindheimer, E. W., Chicago, Ill.
Mid-Continent Ekt. & Mchry. Co., St. Louis, Mo.
Mills Contractors Ekt. Co., Chattanooga, Nashville, Ind.
National Steel Ball Co., St. Louis, Mo.
Pottstown Steel Co., Douglassville, Pa.
Robinson & Orr, Pittsburgh, Pa.
Singer Iron & Steel Co., Houston, Tex.
Southern Iron & Equip. Co., Atlanta, Ga.
Tenn. C. I. & B. R. Co., Birmingham.
United Railway Supply Co., Birmingham.
West Virginia Ball Co., Huntington, W. Va.
Zelicker Supply Co., W. A., St. Louis.

RAILWAYS. (Industrial.)

Bridgell Co., Inc., W. C., Baltimore, Md.
Cincinnati Frog & Switch Co., Cincinnati.

REFLECTORS. (Lamp.)

Frank, Inc., I. F., New York, N. Y.
Hubbell Inc., Harvey, Bridgeport, Conn.

REFRIGERATING MCHY. AND APPARATUS.

Aretic Ice Machine Co., Canton, O.
Baker Ice Machine Co., Omaha, Nebr.
Continental Machinery Co., Chicago, Ill.
Kahoe, Robert P., New York, N. Y.
Southern Ice Machine Co., Charlotte, N. C.
Triumph Ice Machine Co., Cincinnati, O.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Mch. Co., Inc., Henry, Louisville, Ky.
York Mfg. Co., York, Pa.

REINFORCING WIRE FABRIC. (Concrete Road.)

Concrete Steel Co., New York, N. Y.
National Steel Fabric Co., Pittsburgh.

RINGS. (Piston.)

Universal Machine Co., Baltimore, Md.

RIVER AND HARBOR IMPROVEMENTS. (Dredging, Docks, Wharves, etc.)

Atlantic Gulf & Pacific Co., New York.
Foundation Co., The, New York, N. Y.

RIVETS.

Hammond Byrd Iron Co., Birmingham.
Hubbell, Inc., Harvey, Bridgeport, Conn.
Waterbury Mfg. Co., Waterbury, Conn.

ROAD AND STREET MACHINERY.

Barber Asphalt Co., Phila., Pa.
Buffalo-Springfield Roller Co., Springfield, O.
Byers Machine Company, The, Ravenna, O.
Chattanooga Road Machinery Co., Chattanooga, Tenn.
Erie Steam Shovel Co., (Ball Engine Co.), Erie, Pa.
Gallon Iron Works & Mfg. Co., Gallon, O.
Good Roads Mchry. Co., Atlanta, Ga.
Hampton Road Equip. Co., Norfolk, Va.
Keystone Driller Co., Beaver Falls, Pa.
Kinney Mfg. Co., Boston, Mass.
Mason Concrete Roller Co., Macon, Ga.
United Iron Works, Kansas City, Mo.
Universal Road Mchry. Co., Kingston, N. Y.
Wilson Tank & Culvert Co., San Antonio, Tex.

ROAD AND STREET MATERIAL.

Asphalt Association, New York, N. Y.
Barber Asphalt Co., Phila., Pa.
Barrett Co., New York, N. Y.
Birmingham Slag Co., Birmingham, Ala.
Bosley & Co., W. W., Roanoke, Va.
Good Roads Mchry. Co., Atlanta, Ga.
Kentucky Rock Asphalt Co., Louisville.
Petersburg Sand & Gravel Corp., Petersburg, Va.

Portland Cement Assn., Chicago.
Tennessee Copper Co., Copperhill, Tenn.
Texas Co., The, New York, N. Y.
Warren Bros. Co., Boston, Mass.

ROAD BINDERS.

Barber Asphalt Co., Phila., Pa.
Barrett Co., New York, N. Y.
Texas Co., The, New York, N. Y.

ROAD FINISHING MACHINES.

Helical Steel Form & Iron Co., Warren, Ohio.

ROAD GRADERS AND SCRAPERS.

Austin Mfg. Co., Chicago, Ill.
Austin-Western Road Mchry. Co., Chicago.
Erie Steam Shovel Co., (Ball Engine Co.), Erie, Pa.
Gallon Iron Works & Mfg. Co., Gallon, O.
Good Roads Mchry. Co., Atlanta, Ga.

ROAD OILERS.

Austin-Western Road Mchry. Co., Chicago.

ROAD OILS AND PRESERVATIVES.

Barber Asphalt Co., Phila., Pa.
Barrett Co., New York, N. Y.
Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.
Gulf Refining Co., Pittsburgh, Pa.
Texas Co., The, New York, N. Y.

ROAD-OILING MACHINERY.

Austin-Western Road Mchry. Co., Chicago.
Kinney Mfg. Co., Boston, Mass.

ROAD FLOWS.

Austin-Western Road Mchry. Co., Chicago.
Gallon Iron Works & Mfg. Co., Gallon, O.

ROAD REINFORCEMENT. (Welded Fabric.)

Concrete Steel Co., New York, N. Y.
National Steel Fabric Co., Pittsburgh.

ROAD ROLLERS.

Austin Mfg. Co., Chicago, Ill.
Buffalo-Springfield Roller Co., Springfield, Ohio.
Gallon Iron Works & Mfg. Co., Gallon, O.
Good Roads Mchry. Co., Atlanta, Ga.

Steam and Gasoline.

Austin-Western Road Mchry. Co., Chicago.
Barber Asphalt Co., Phila., Pa.
Buffalo-Springfield Roller Co., Springfield, Ohio.
Erie Machine Shops, Erie, Pa.
Good Roads Mchry. Co., Atlanta, Ga.
Service Equipment Co., Philadelphia.
Universal Road Mchry. Co., Kingston, N. Y.

ROAD SCARIFIERS.

Austin Mfg. Co., Chicago, Ill.
Buffalo-Springfield Roller Co., Springfield, Ohio.
Gallon Iron Works & Mfg. Co., Gallon, O.
Good Roads Mchry. Co., Atlanta, Ga.

ROLLERS. (for Concrete Road.)

Macon Concrete Roller Co., Macon, Ga.

ROCK ASPHALT.

Kentucky Rock Asphalt Co., Louisville.

ROOFING.

Asbestos Protected Metal.
Robertson Co., H. H., Pittsburgh, Pa.

Cement Tile.

Amer. Cement Tile Mfg. Co., Pitta., Pa.

Metal Shingles.

Cortright Metal Roofing Co., Phila., Pa.
Gordon Metal Co., Richmond, Va.
Southern Sheet & Tin Plate Co., Ashland, Ky.

Ready Prepared. (Felt, Tar, Asbestos Asphalt.)

Amer. Sheet & Tin Plate Co., Pittsburgh.
Barber Asphalt Co., Phila., Pa.
Barrett Co., New York, N. Y.
Gordon Metal Co., Richmond, Va.
Johns-Manville Inc., H. W., New York.
Southern Sheet & Tin Plate Co., Ashland, Ky.

Slate.

Structural Slate Co., Pen Argy, Pa.

Vendor Slate Co., Inc., Easton, Pa.

Tin.

Taylor Co., N. & G., Phila., Pa.

HOOFING AND SIDING.

Amer. Rolling Mill Co., Middletown, O.
Amer. Sheet & Tin Plate Co., Pittsburgh.
Berger Mfg. Co., Canton, Ohio.
Brier Hill Steel Co., Youngstown, O.
Cortright Metal Roofing Co., Phila., Pa.
Edwards Mfg. Co., The, Cincinnati, O.
Mooschil-Edwards Corr. Co., Cincinnati.

Republic Iron & Steel Co., Youngstown, O.
Robertson Co., H. H., Pittsburgh.
Wheeling Steel Prod. Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., The, Youngstown, O.

Asbestos Protected Metal.

Robertson Co., H. H., Pittsburgh, Pa.

ROOFING TILES.

Amer. Cement Tile Mfg. Co., Pittsburgh.
Ludlow-Celadon Co., Chicago, Ill.
Oconee Br. & Tile Co., Milledgeville, Ga.
Southern Mosaic Tile Co., Atlanta, Ga.

ROPE.

Samson Braided Cotton.
Cannon Cordage Works, Boston, Mass.
Manilla, Sisal, Hemp, Etc.
Broderick & Bascom Rope Co., St. Louis.
Plymouth Cordage Co., North Plymouth, Mass.
Whitlock Cordage Co., New York, N. Y.

Wire, Transmission, Hoisting, Hoilase.

American Steel & Wire Co., Chicago, Ill.
Broderick & Bascom Rope Co., St. Louis.
Leschen & Sons Rope Co., A., St. Louis.
Reebing's Sons Co., John A., Trenton, N. J.
Whitlock Cordage Co., New York, N. Y.

ROPE DRIVES.

Caldwell & Son Co., H. W., Chicago, Ill.
Crescor-Morris Co., Philadelphia, Pa.
Jones & Laughlin Steel Co., Pittsburgh.
Medart Co., The, St. Louis, Mo.
Weller Mfg. Co., Chicago, Ill.
Woods Sons Co., T. B., Chambersburg, Pa.

RUBBER GOODS.

Goodrich Rubber Co., B. F., Akron, O.
Goodyear Tire & Rubber Co., Akron, O.

RULES. (Steel.)

Starrett Co., L. S., Athol, Mass.

S. A. E. FITTINGS.

Mueller Metals Co., Port Huron, Mich.

SAND.

Arundel Corp., The, Baltimore, Md.
Friend & Co., Inc., Petersburg, Va.
Kirkpatrick Sand & Cement Co., Birmingham, Ala.
Petersburg Sand & Gravel Corp., Petersburg, Va.

SAND DRYERS.

American Process Co., New York, N. Y.
Ripley Foundry & Mchry. Co., Ripley, O.

SANITARY CLOSET OUTFITS.

Standard Cement Constr. Co., Wilmington, N. C.

SAP STAIN PREVENTIVE.

Church & Dwight Co., New York, N. Y.

SASH OPERATING DEVICES.

Advance Company, Richmond, Ind.
Drouve Co., G., Bridgeport, Conn.

SAWS.

Atkins & Co., Inc., E. C., Indianapolis Ind.
Hask.
Atkins & Co., Inc., E. C., Indianapolis Ind.
Starrett Co., L. S., Athol, Mass.

Power Hack.

Machine Tool & Mch. Co., Racine, Wis.

SAWMILL MACHINERY.

American Saw Mill Mchry. Co., Hackettstown, N. J.
Bailey-Labby Co., Charleston, S. C.
Lane Mfg. Co., Montpelier, Vt.
Paris, Ball Bearing Machine Co., The, Cincinnati, Ohio.
Schodfield's Iron Works, Macon, Ga.

SAW MILLS. (Portable.)

Corinth Mchry. Co., Corinth, Miss.
Lane Mfg. Co., Montpelier, Vt.

SCALES.

Fairbanks, Morse & Co., Chicago, Ill.

SCRAPERS.

Drag.
Austin-Western Road Mchry. Co., Chicago.

Power.

Baerman Bros., Chicago, Ill.

Wheeled.

Austin-Western Road Mchry. Co., Chicago.

SCRAP IRON AND STEEL.

Bridgell Co., Inc., W. C., Baltimore.
Hyman-Michaels Co., Chicago, Ill.
Pottstown Steel Co., Douglassville, Pa.

SCREENS. (Fly, Window and Door.)

Cincinnati Fly Screen Co., Cincinnati, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
New Jersey Wire Cloth Co., Trenton, N. J.

SCREENS. (Oil, Water and Gas Well.)

McEvoy & Co., J. H., Houston, Texas.

SCREENS. (Sand, Gravel, Stone, Coal, Ore, etc.)

Andison Wire Cloth Co., Andubon, N. J.
Crescor-Morris Co., Philadelphia, Pa.
Erdie Perforating Co., Rochester, N. Y.
Hendrick Mfg. Co., Carbondale, Pa.

Link-Belt Co., Philadelphia, Pa.
Ludlow-Saylor Wire Co., St. Louis, Mo.
McLanahan-Stone Mch. Co., Hollidaysburg, Pa.
Mundt & Sons, Charles, Jersey City, N. J.
New Jersey Wire Cloth Co., Trenton, N. J.
Traylor Eng. & Mfg. Co., Allentown, Pa.
Wickwire-Spencer Steel Corp., New York.

SCREENINGS. (For Concrete and Road Construction.)

American Limestone Co., Knoxville, Tenn.

SCREW-MACHINE PRODUCTS.

Progressive Mfg. Co., Torrington, Conn.
Waterbury Mfg. Co., Waterbury, Conn.

SCREWS.

Machine.

Hubbell, Inc., Harvey, Bridgeport, Conn.
Progressive Mfg. Co., Torrington, Conn.
Waterbury Mfg. Co., Waterbury, Conn.

SELF-RELEASING FIRE-EXIT DEVICES.

Vonnegut Hardware Co., Indianapolis.

SEPARATORS. (Dust.)

Raymond Bros. Impact Pulv. Co., Chicago.

SEPTIC TANKS.

Chattanooga Sewer Pipe Works, Chattanooga, Tenn.
Standard Cement Constr. Co., Wilmington, N. C.

SEWAGE-DISPOSAL APPARATUS.

Pacific Flush-Tank Co., New York, N. Y.

SEWER JOINT COMPOUNDS.

Pacific Flush-Tank Co., New York, N. Y.

SEWER PIPE. (Vitrified.)

Bannon Pipe Co., Louisville, Ky.
Cambria Clay Products Co., Blackfork, O.
Cannelton Sewer Pipe Co., Cannelton, Ind.
Chattanooga Sewer Pipe Works, Chattanooga, Tenn.

Oconee Br. & Tile Co., Milledgeville, Ga.

Owensboro Sewer Pipe Co., Owensboro, Ky.
Stevens Bros. & Co., Stevens Pottery, Ga.

SEWER PIPE MACHINERY.

Taplin-Rice-Clerkin Co., Akron, O.

SHAFTING.

Ryerson & Son, Jos. T., St. Louis and New York.
Union Drawn Steel Co., Beaver Falls, Pa.

Gold Rolled Steel

American Steel & Wire Co., Chicago, Ill.

Flexible.

Strand & Co., N. A., Chicago, Ill.

Polished Steel.

Jones & Laughlin Steel Co., Pittsburgh.
Medart Co., The, St. Louis, Mo.
Republic Iron & Steel Co., Youngstown, O.
Union Drawn Steel Co., Beaver Falls, Pa.

SHAFTING MATERIAL. (Tubular.)

National Tube Co., Pittsburgh, Pa.

SHARPENING STONES.

Carborundum Co., Niagara Falls, N. Y.

SHEET BRASS AND COPPER.

Chase Metal Works, Waterbury, Conn.

SHEET METAL WORK.

Burkett Sheet Metal Works, Hattiesburg, Miss.
National Blow Pipe & Mfg. Co., New Orleans, La.
Shreveport Blow Pipe & Sheet Iron Works, Ltd., Shreveport, La.

SHEET METAL WORKING MCHY.

Bliss Co., E. W., Brooklyn, N. Y.

SHEET STEEL AND IRON.

Amer. Rolling Mill Co., Middletown, O.
Amer. Sheet & Tin Plate Co., Pittsburgh.
Bethlehem Steel Co., Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, O.
Cincinnati Iron & Steel Co., Cincinnati.
Falcon Steel Co., The, Niles, O.
Republic Iron & Steel Co., Youngstown, O.
Ryerson & Son, Jos. T., St. Louis and New York.

Tenn. C. I. & B. R. Co., Birmingham.

Wheeling Steel Prod. Co., Wheeling, W. Va.

Wood, Iron & Steel Co., Alan, Phila., Pa.

Youngstown Sheet & Tube Co., The, Youngstown, O.

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

Asbestos Protected.
Robertson Co., H. H., Pittsburgh, Pa.

SHEET STEEL PILING.

Lindheimer, S. W., Chicago, Ill.

SMELTING. (Steel.) (Vault, Store, etc.)
Dexter Metal Mfg. Co., Camden, N. J.
Lupton's Sons Co., David, Phila., Pa.
Medart Mfg. Co., Fred., St. Louis, Mo.

SHINGLES.

Cedar.
Kirkpatrick Lumber & Timber Co., Birmingham, Ala.

Metal.
Bergner Mfg. Co., The, Canton, O.
Canton Art Metal Co., The, Canton, O.
Cortright Metal Roofing Co., Phila., Pa.
Gordon Metal Co., Richmond, Va.
Southern Sheet & Tin Plate Co., Ashland, Ky.

SHINGLE STAINS.

Jabot, Inc., Samuel, Boston, Mass.

SHIPBUILDING.

Gun Shipbuilding Co., Chester, Pa.

SHOVELS.

(Steam, Gas, Electric and Power.)
Browning Co., Cleveland, Ohio.
Hucycon Co., South Milwaukee, Wis.
Erie Steam Shovel Co., (Ball Engine Co.), Erie, Pa.
Marion Steam Shovel Co., Marion, O.
Northwest Engr. Co., Chicago, Ill.
Osgood Co., The, Marion, O.

SHUTTERS.

Steel.
Swedish Venetian Blind Co., New York.

Steel and Wood Bi-folding.
Kinnear Mfg. Co., Columbus, O.

SIGNS.

Electric.
Frink, Inc., I. F., New York, N. Y.

SILOS.

Woolford Wood Tank Mfg. Co., G., Phila.

SKYLIGHTS.

Edwards Mfg. Co., The, Cincinnati, O.
Hies-Turner Glass Co., Washington.
Probert Sheet Metal Co., Cincinnati.
Robertson Co., H. H., Pittsburgh, Pa.

Puttlys.
Drouse Co., G., Bridgeport, Conn.
Schneidinger, F. O., Columbus, O.

SLAG.

Concrete.
Birmingham Slag Co., Birmingham, Ala.
Tennessee Copper Co., Copperhill, Tenn.

Furnace.
Birmingham Slag Co., Birmingham, Ala.
Tennessee Copper Co., Copperhill, Tenn.

SLATE PRODUCTS.

Structural Slate Co., Pen Argyl, Pa.
Vander Slate Co., Inc., Easton, Pa.

SLUICE-GATES AND APPLIANCES.

Coldwell-Walox Co., Newburgh, N. Y.

SMOKESTACKS.

(Iron and Steel.)
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago Bridge & Iron Works, Chicago.
Downtown Iron Wks., Downtown, Pa.
Holtel Steel Form & Iron Co., Warren, Ohio.
Lancaster Iron Works Co., Lancaster, Pa.
Lombard Iron Wks. & Sup. Co., Augusta.
Pittsburgh-Des Moines St. Co., Pittsburgh.
Schefield's Iron Works, Macon, Ga.
Sharpsville Boiler Wks. Co., Sharpsville, Pa.
U. S. Cast Iron Pipe & Fdy. Co., Burlington, N. J.
Virginia Bridge & Iron Co., Roanoke, Va.
Walsh & Weidner Boiler Co., Chattanooga.
Youngstown Boiler & Tank Co., Youngstown, O.

SODA.

(Bicarbonate.)
Church & Dwight Co., New York, N. Y.

SPIKES.

Railroad, Ship.
Bethlehem Steel Co., Bethlehem, Pa.
Republic Iron & Steel Co., Youngstown, O.

SPRINKLER TANK.

(Steel.)
Chicago Bridge & Iron Works, Chicago.

SPRINKLERS.

Automatic Fire.
Beverly Heating Co., R. C., Richmond, Va.
Crawford & Staten, Atlanta, Ga.

Street.
Lynch Mfg. Co., Chicago, Ill.

SPRINGS.

(Mch., Rwy., Spiral, Steel.)
Raymond Mfg. Co., Ltd., Corry, Pa.

STACKS.

(Radial Brick.)
Custodia Chimney Constr. Co., Alphonso, New York, N. Y.

STAINS.

(Shingle, Woodwork, etc.)
Cabot, Inc., Samuel, Boston, Mass.

STAIR TREADS.

(Non-slipping.)
Concrete Steel Co., New York, N. Y.

STAMPS.

(Brass, Rubber.)
Dorman Co., J. F. W., Baltimore, Md.

STANDPIPES.

Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago Bridge & Iron Works, Chicago.
Hartley Boiler Works, Montgomery, Ala.
Pittsburgh-Des Moines St. Co., Pittsburgh.
Walsh & Weidner Boiler Co., Chattanooga.

STARTING SWITCHES.

Electric Controller & Mfg. Co., Cleveland.

STATIONERS.

(Envelopes, Letter and Billheads, etc.)
Cussons, May & Co., Inc., Richmond, Va.
Smith Co., The Oscar T., Baltimore, Md.
Young & Selden Co., Baltimore, Md.

STEAMSHIP LINES.

(Coastwise.)
Merchants & Miners Transportation Co., Baltimore, Md.

STEAM METERS.

American District Steam Co., North Tonawanda, N. Y.

STEAM SHOVELS.

Browning Co., Cleveland, Ohio.
Erie Steam Shovel Co., (Ball Engine Co.), Erie, Pa.
Keystone Driller Co., Beaver Falls, Pa.
Osgood Co., The, Marion, O.
Sherwood, E. C., New York, N. Y.

STEAM SPECIALTIES.

American District Steam Co., North Tonawanda, N. Y.
Chicago, Ill.
Jenkins Bros., New York, N. Y.
Lunkenheimer Co., The, Cincinnati, O.
Powell Co., The William, Cincinnati, O.

STEAM TRAPS.

Jenkins Bros., New York, N. Y.
Johns-Manville Inc., H. W., New York.

STEEL.

Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
District Bros., Baltimore, Md.
Falcon Steel Co., The, Wiles, O.
Jones & Laughlin Steel Co., Pittsburgh.
Lukens Steel Co., Coatesville, Pa.
Midvale Steel & Ordnance Co., Phila., Pa.
River Iron Works Co., Pittsburgh.
Pittsburgh Steel Co., Pittsburgh, Pa.
Ryerson & Son, Jos. T., St. Louis and New York.
Tenn. C. I. & R. Co., Birmingham.
Union Drawn Steel Co., Beaver Falls, Pa.
United Railway Supply Co., Birmingham.
Wheeling Steel Prod. Co., Wheeling, W. Va.
Wood, Iron & Steel Co., Alan, Phila., Pa.
Youngstown Sheet & Tube Co., The, Youngstown, O.

Electric Furnace.

Bethlehem Steel Co., Bethlehem, Pa.

Strip.

Nat. Pressed Steel Co., Massillon, O.

Tool.

(High Speed.)
Bethlehem Steel Co., Bethlehem, Pa.
Gordon Metal Co., Richmond, Va.
Midvale Steel & Ordnance Co., Phila., Pa.
Ryerson & Son, Jos. T., St. Louis and New York.
Union Drawn Steel Co., Beaver Falls, Pa.

Vanadium.

Union Drawn Steel Co., Beaver Falls, Pa.

STEEL BUILDINGS.

Designers and Builders.
American Bridge Co., New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Blaw-Knox Co., Pittsburgh, Pa.
Carnegie Steel Co., Pittsburgh.
Champion Bridge Co., Wilmington, Ohio.
Chesapeake Iron Works, Baltimore, Md.
Cincinnati Iron & Steel Co., Cincinnati.
Converse Bridge & Steel Co., Chattanooga.
District Bros., Baltimore, Md.
Granger & Co., Inc., Louisville, Ky.
Ingalls Iron Works Co., Birmingham, Ala.
Inter' Steel & Iron Co., Evansville, Ind.
Natl. Pressed Steel Co., Massillon, O.
Jones & Laughlin Steel Co., Pittsburgh.
McClintic-Marshall Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Phila.
Phoenix Iron Co., Tulsa, Okla.
Patterson Steel Co., Phila., Pa.
Pittsburgh-Des Moines St. Co., Pittsburgh.
Richmond Struct. Steel Co., Richmond, Va.
Reaite & Sons Co., Wm. B., Pittsburgh.

Snead Architectural Iron Wks., Louisville.
Virginia Bridge & Iron Co., Roanoke, Va.
Walsh & Weidner Boiler Co., Chattanooga.

Ready-made Sectional.

Mayland Metal Building Co., Baltimore.
Widener Engineering Co., St. Louis, Mo.

STEEL CASTINGS.

Crucible Steel Casting Co., Landsdowns, Pa.
Midvale Steel & Ordnance Co., Phila.

STEEL LUMBER.

Nat. Pressed Steel Co., Massillon, O.
Truscon Steel Co., Youngstown, O.

STEEL PLATE WORK.

Blaw-Knox Co., Pittsburgh, Pa.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chesapeake Iron Works, Baltimore, Md.
Chicago Bridge & Iron Works, Chicago.
Ironport Boiler Works, Ironport, Ohio.
Lancaster Iron Works Co., Lancaster, Pa.
Lukens Steel Co., Coatesville, Pa.
Petroleum Iron Wks. Co., Sharon, Pa.
Phoenix Iron Co., Philadelphia, Pa.
Ritter-Conley Co., Pittsburgh, Pa.
Southern Metal Co., Lake Charles, La.
Sharpsville Boiler Wks. Co., Sharpsville, Pa.
Treadwell Constr. Co., Midland, Pa.
Walsh & Weidner Boiler Co., Chattanooga.
Youngstown Boiler & Tank Co., Youngstown, O.

STEEL SHEET PILING.

Jones & Laughlin Steel Co., Pittsburgh.
Zelnicke Supply Co., Walter A., St. Louis.

STENCILS.

Dorman Co., J. F. W., Baltimore, Md.

STENCIL-CUTTING MACHINES.

Regan & Co., J. R., Atlanta, Ga.

STILLS.

Petroleum Iron Wks. Co., Sharon, Pa.

STOCK CERTIFICATES, BONDS AND SEALS.

Dorman Co., J. F. W., Baltimore, Md.

STOKERS.

Hand.
Vogt Bros. Mfg. Co., Louisville, Ky.

Mechanical.

Babcock & Wilcox Co., New York, N.Y.
McClure-Brooks Co., Scranton, Pa.
Westinghouse El. & Mfg. Co., E. Pitts.

STONE.

(Buildings.)
Carthage, Mo.
Williams Brick Co., F. Graham, Atlanta.

STONE AND GRAVEL PLANT EQUIP.

Weller Mfg. Co., Chicago, Ill.

STORE FRONTS.

Complete.
Inter' Steel & Iron Co., Evansville, Ind.

Glass.

Hies-Turner Glass Co., Washington, D.C.

Metal.

Zouri Drawn Metals Co., Chicago Ill. Ill.

STRAINERS.

(Oil, Water and Gas Well.)
McKroy & Co., J. H., Houston, Texas.

STREET SWEEPERS.

Austin Mfg. Co., Chicago, Ill.

STRIPS.

(Steel.)
Nat. Pressed Steel Co., Massillon, O.

STRUCTURAL STEEL AND IRON.

American Bridge Co., New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh.
Champion Bridge Co., Wilmington, Ohio.
Chesapeake Iron Works, Baltimore, Md.
Cincinnati Iron & Steel Co., Cincinnati.
Converse Bridge & Steel Co., Chattanooga.
District Bros., Baltimore, Md.
Granger & Co., Inc., Louisville, Ky.
Ingalls Iron Works Co., Birmingham, Ala.
Inter' Steel & Iron Co., Evansville, Ind.
Natl. Pressed Steel Co., Massillon, O.
Jones & Laughlin Steel Co., Pittsburgh.
McClintic-Marshall Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Phila.
Phoenix Iron Co., Tulsa, Okla.
Patterson Steel Co., Phila., Pa.
Pittsburgh-Des Moines Steel Co., Pittsburgh.

Reilly Mfg. Co., J. J., Louisville, Ky.
Republic Iron & Steel Co., Youngstown, O.
Richmond Struct. Steel Co., Richmond, Va.
Roanoke Iron & Bridge Works, Roanoke, Va.

Ryerson & Son, Jos. T., St. Louis and New York.

Smith Gas Engr. Co., Dayton, O.
Snead Architectural Iron Wks., Louisville.
Tenn. C. I. & R. Co., Birmingham.

Virginia Bridge & Iron Co., Roanoke, Va.

Walsh & Weidner Boiler Co., Chattanooga.
Wilson Co., The, Greenville, S. C.

SULPHUR.

Freeport Sulphur Co., Freeport, Texas.
Union Sulphur Co., The, New York.

SULPHURIC ACID.

Darwin Chemical Co., Baltimore, Md.
Du Pont de Nemours & Co., Inc., E. I. Wilmington, Del.

SUPER-HEATERS.

(Steam.)
Babcock & Wilcox Co., New York, N. Y.
Power Specialty Co., New York, N. Y.

SURVEYING INSTRUMENTS.

Weber Co., F., Philadelphia, Pa.

SWINGING ENGINES.

Dake Engine Co., Grand Haven, Mich.

SWITCHBOARDS, SWITCHES, ETC.

Electric Controller & Mfg. Co., The, Cleveland, O.
General Electric Co., Schenectady, N. Y.
Handle Machinery Co., Cincinnati, O.
Westinghouse El. & Mfg. Co., E. Pitts.

SWITCHSTANDS.

Weir Frog Co., Cincinnati, O.

TANKS.

Air Compressor.
Air-Tight Steel Tank Co., Pittsburgh.

Lead Lined.

Hauser-Stander Tank Co., Cincinnati.

Iron and Steel.

Air-Tight Steel Tank Co., Pittsburgh.
American Bridge Co., New York, N. Y.
American Water Softener Co., Phila., Pa.
Blaw-Knox Co., Pittsburgh, Pa.
Caldwell Co., Inc., W. E., Louisville, Ky.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago Bridge & Iron Works, Chicago.
Cole Mfg. Co., B. D., Newnan, Ga.
Downtown Iron Wks., Downtown, Pa.
Hamburg Boiler Wks., Hamburg, Berks County, Pa.
Hartley Boiler Works, Montgomery, Ala.
Holtel Steel Form & Iron Co., Warren, Ohio.
Hendrick Mfg. Co., Carbondale, Pa.
Ingalls Iron Works Co., Birmingham, Ala.
Ironport Boiler Works, Ironport, Ohio.
Keystone Tank & Boiler Wks., Butler, Pa.
Lancaster Iron Works Co., Lancaster, Pa.
Lombard Iron Wks. & Sup. Co., Augusta.
Petroleum Iron Works Co., Sharon, Pa.
Pittsburgh-Des Moines St. Co., Pittsburgh.
Ritter-Conley Co., Pittsburgh, Pa.
Seale & Sons Co., Wm. B., Pittsburgh.
Schefield's Iron Works, Macon, Ga.
Sharpsville Boiler Wks. Co., Sharpsville, Pa.
Smith Gas Engr. Co., Dayton, O.
Southern Metal Co., Lake Charles, La.
Treadwell Constr. Co., Midland, Pa.
Virginia Bridge & Iron Co., Roanoke, Va.
Walsh & Weidner Boiler Co., Chattanooga.
Westinghouse Traction Brake Co., Wheeling, Pa.
Youngstown Boiler & Tank Co., Youngstown, O.

Pickling.

Hauser-Stander Tank Co., Cincinnati, O.

Seamless Steel.

National Tube Co., Pittsburgh, Pa.

Septic.

Universal Concrete Products Co., New Martinsville, W. Va.

Storage, Oil, etc.

Downtown Iron Wks., Downtown, Pa.
Keystone Tank & Boiler Wks., Butler, Pa.
Nashville Ind. Corp., Jacksonville, Tenn.
Petroleum Iron Works Co., Sharon, Pa.
Sharpsville Boiler Wks. Co., Sharpsville, Pa.
Southern Metal Co., Lake Charles, La.
Wayne Tank & Pump Co., Ft. Wayne, Ind.
Youngstown Boiler & Tank Co., Youngstown, O.

Wood.

Caldwell Co., Inc., W. E., Louisville, Ky.
Continental Pipe Mfg. Co., Seattle, Wash.
Davis & Son, G. M., Palatka, Fla.
Hauser-Stander Tank Co., Cincinnati, O.
Virginia Mch. & Wll Co., Richmond, Va.
Woolford Wood Tank Mfg. Co., G. Phila.

In

TANK

Liquids

TAPES.

Starrett

TELEPH.

American

TELEPH.

(Auto)

Automatic

TERRA-

Atlanta

THRESH-

Cardwell

TILE.

Chattanooga

nooga, Tenn.

Kingsport

Oceanic

West Va.

Amer. En-

Head Br-

Oceanic

Southern

Chattanooga

nooga, Tenn.

Kingsport

Oceanic

TILE CER-

Amer. Cen-

TILE SLA-

Amer. Cen-

Ladewic-

TIMBERS

American

TIME RE-

Chicago W-

Eco Clock

Newman

TIN AND

Amer. She-

Bethlehem

Taylor

Wheeling

TIN PLAT-

Anderson

Ind.

TIRES

Kelly-Spr-

TOBACCO

Cardwell

Miley Four

TOOLS.

Clark Jr. E-

Independent

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

TANK CARS.

Liquids Despatch Line, Chicago, Ill.

TAPES. (Measuring.)

Starrett Co., I. S., Athol, Mass.

TELEPHONE SERVICE.

American Telephone & Telegraph Co.

TELEPHONE SYSTEMS.

(Automatic Interior and Local.)
Automatic Electric Co., Chicago, Ill.

TERRA-COTTA. (Ornamental.)

Atlanta Terra-Cotta Co., Atlanta, Ga.

THRESHERS.

Cardwell Machine Co., Richmond, Va.

TILE.

Drain.
Chattanooga Sewer Pipe Works, Chattanooga, Tenn.
Kingsport Brick Corp., Kingsport, Tenn.
Oconee Br. & Tile Co., Milledgeville, Ga.
West Va. Fire Clay Mfg. Co., Pittsburgh.

Floor, Wall, Mantel, Etc.
Amer. Enam. Brick & Tile Co., N. Y.
Head Brick Co., E. Mifflin, Atlanta, Ga.
Oconee Br. & Tile Co., Milledgeville, Ga.
Southern Mosaic Tile Co., Atlanta, Ga.

Segment Blocks.

Chattanooga Sewer Pipe Wks., Chattanooga, Tenn.

Structural.

Kingsport Brick Corp., Kingsport, Tenn.
Oconee Br. & Tile Co., Milledgeville, Ga.

TILE CEMENT.

Amer. Cement Tile Mfg. Co., Pittsburgh.

TILE SLABS.

Amer. Cement Tile Mfg. Co., Pittsburgh.
Ludwig-Celadon Co., Chicago, Ill.

TIMBERS.

Crescoted.
American Crescote Wks., New Orleans.

TIME RECORDERS.

Chicago Watchman's Clock Wks., Chicago.
Eco Clock Co., Boston, Mass.
Newman Clock Co., New York, N. Y.

TIN AND TERNE PLATES.

Amer. Sheet & Tin Plate Co., Pittsburgh.
Bethlehem Steel Co., Bethlehem, Pa.
Taylor Co., N. & G., Phila., Pa.
Wheeling Steel Prod. Co., Wheeling, W. Va.

TIN PLATE POLISHING MACHINERY.

Anderson Fdry. & Mch. Co., Anderson, Ind.

TIRES

Motor Truck.
Kelly-Springfield Tire Co., New York.

TOBACCO MACHINERY.

Cardwell Machine Co., Richmond, Va.
Ripley Foundry & Mach. Co., Ripley, O.

TOOLS.

Electric.
Clark Jr. Electric Co., Jas., Louisville, Ky.
Independent Pneumatic Tool Co., Chicago.

Mechanists.

Pratt & Whitney Co., New York.
Western Tool & Mfg. Co., Springfield, O.

Mechanical.

Starrett Co., I. S., Athol, Mass.

Pneumatic.

Independent Pneumatic Tool Co., Chicago.
Ingersoll-Rand Co., New York, N. Y.

TOOLHOLDERS.

Western Tool & Mfg. Co., Springfield, O.

TOWERS.

Electric Transmission.
American Bridge Co., New York, N. Y.
Blair-Knox Co., Pittsburgh, Pa.
Hiter-Conley Co., Pittsburgh, Pa.

Radio.

Hiter-Conley Co., Pittsburgh, Pa.

Steel and Wood.

Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Coh Mfg. Co., R. D., Newman, Ga.
Pittsburgh-Des Moines St. Co., Pittsburgh.
Wain & Weidner Boiler Co., Chattanooga.

TRACK SPIKES.

Atlanta Bolt & Steel Prod. Co., Atlanta.

TRAILERS. (Industrial.)

Electric Wheel Co., Quincy, Ill.
Sharon Pressed Steel Co., Sharon, Pa.

TRAMWAY.

Overhead.
Richards-Wilcox Mfg. Co., St. Louis, Mo.

Wire Rope.

American Steel & Wire Co., Chicago.
Broderick & Bascom Rope Co., St. Louis.
Caldwell & Son Co., H. W., Chicago, Ill.
Leach & Sons Rope Co., A., St. Louis.

TRANSFORMERS.

Crocker-Wheeler Co., Ampere, N. J.
General Electric Co., Schenectady, N. Y.
Westinghouse El. & Mfg. Co., E. Pitts.

TRANSMISSION BEARINGS AND HANGERS

Standard Pressed Steel Co., Jenkintown, Pa.

Wood's Sons Co., T. B., Chambersburg, Pa.

TRENCH MACHINERY.

Austin Mchry. Corp., Chicago, Ill.
Buckeye Traction Ditcher Co., Findlay, O.
Erie Steam Shovel Co., (Ball Engine Co.), Erie, Pa.

TRIM. (Metal.)

Dahlstrom Metalite Door Co., Jamestown, N. Y.

TROLLEYS. (Overhead Tramway.)

New Jersey Fdy. & Mach. Co., New York.
Reading Chain & Block Corp., Reading, Pa.

TRUCKS.

Drykiln.
Moore Dry Kiln Co., Jacksonville, Fla.

Industrial.

Sharon Pressed Steel Co., Sharon, Pa.

Motor.

General Motors Truck Co., Pontiac, Mich.
Packard Motor Car Co., Detroit, Mich.

Platform, Freight, Mill, Factory, Etc.
Edwards Mfg. Co., The Cincinnati, O.

TRUST COMPANIES.

Maryland Trust Co., Baltimore, Md.

TUBE WELL STRAINERS.

Cook, A. D., Lawrenceburg, Ind.

TUBING.

Brass and Copper.
Chase Metal Works, Waterbury, Conn.
Mueller Metals Co., Port Huron, Mich.

Metal.

Boiler Tube Co. of America, Pittsburgh.
Goodyear Tire & Rubber Co., Akron, O.
Wheeling Steel Prod. Co., Wheeling, W. Va.

Seamless Steel.

National Tube Co., Pittsburgh, Pa.

TURBINES.

Hydraulic.
Davis Foundry & Mch. Wks., Rome, Ga.
Lefol & Co., James, Springfield, O.
Smith Co., S. Morgan, York, Pa.

Steam.

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
De Laval Steam Turbine Co., Trenton, N. J.

General Electric Co., Schenectady, N. Y.
Westinghouse El. & Mfg. Co., E. Pitts.

TURNABLES.

American Bridge Co., New York, N. Y.

Virginia Bridge & Iron Co., Roanoke, Va.

Automatic. (Portable for Trucks.)
Champion Engr. Co., The, Kenton, O.

TWINE.

Plymouth Cordage Co., North Plymouth, Mass.

Whitlock Cordage Co., New York, N. Y.

UNIONS.

Dart Mfg. Co., E. M., Providence, R. I.

UNLOADERS.

Burch Plow Works Co., The, Crestline, O.

Car.

Heltzel Steel Form & Iron Co., Warren, Ohio.

VALVES.

Bethlehem Shipbuilding Corp., Bethlehem, Pa.
Bourbon Copper & Brass Works Co., Cincinnati, O.

Columbia Iron Wks., Chattanooga, Tenn.
Crane Co., Chicago, Ill.

Frick Co., Waynesboro, Pa.
Jenkins Bros., New York, N. Y.

Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Co., The, Cincinnati, O.

Powell Co., The, William, Cincinnati, O.
Ryerson & Son, Jos. T., St. Louis and New York.

Vogt Mch. Co., Inc., Henry, Louisville.
Westinghouse Traction Brake Co., Wilkesburg, Pa.

Wood Drill Works, Peterson, N. J.
York Mfg. Co., York, Pa.

Acid-proof.
Lunkenheimer Co., The, Cincinnati, O.

Gas Producing.
Morgan Construction Co., Worcester, Mass.

Gas Reversing.
Morgan Construction Co., Worcester, Mass.

Gate.

Ludlow Valve Mfg. Co., Troy, N. Y.

VARIABLE-SPEED TRANSMISSION.

Reeves Pulley Co., Columbus, Ind.

VARNISH.

Berry Brothers Inc., Detroit, Mich.
Pittsburgh Plate Glass Co., Milwaukee, Wis.

Truscon Laboratories, The, Detroit, Mich.

VENEER CUTTING MACHINES.

Titus, E. E., Petersburg, Va.

VENTILATING APPARATUS.

Engineers' and Contractors'.
Allen Engr. & Mfg. Co., Savannah, Ga.
Buckeye Blower Co., Columbus, O.
Buffalo Forge Co., Buffalo, N. Y.

Mechanical.

Advance Company, Richmond, Ind.

VENTILATORS. (Roof.)

Edwards Mfg. Co., The, Cincinnati, O.
Lenderking, Philip H., Baltimore, Md.
Robertson Co., H. H., Pittsburgh, Pa.
Schoedinger, F. O., Columbus, O.

VICES.

Western Tool & Mfg. Co., Springfield, O.

VOLTMETERS.

Weston Electrical Instr. Co., Newark, N. J.

WAGON LOADERS.

Austin Machinery Corp., Chicago, Ill.
Bonney Supply Co., Inc., Rochester, N. Y.
Hais Mfg. Co., Ges., New York, N. Y.
Link-Belt Co., Philadelphia, Pa.
Portable Mchry. Co., Passaic, N. J.

WASHING MACHINERY.

Ore and Phosphate.
Bailey-Lobby Co., Charleston, S. C.

Sand and Gravel.

Bonney Supply Co., Inc., Rochester, N. Y.
Link-Belt Co., Philadelphia, Pa.

WATCHMAN'S PORTABLE CLOCKS.

Chicago Watchman's Clock Wks., Chicago.
Eco Clock Co., Boston, Mass.
Newman Clock Co., New York, N. Y.

Waterproofing. (For Brick, Concrete, Granite, etc.)

Master Builders Co., The, Cleveland, O.
Sonneborn Sons, Inc., L., New York.
Texas Co., The, New York, N. Y.
Truscon Laboratories, The, Detroit, Mich.

WATER PURIFICATION.

New York Continental Jewell Filtration Co., The, Nutley, N. J.
Roberts Filter Mfg. Co., Darby, Pa.
Seale & Sons Co., Wm. B., Pittsburgh.

Wayne Tank & Pump Co., Fr. Wayne, Ind.

WATER-SOFTENING APPARATUS. (Purifying.)

American Water Softener Co., Phila.
International Filter Co., Chicago, Ill.
New York Continental Jewell Filtration Co., The, Nutley, N. J.

Seale & Sons Co., Wm. B., Pittsburgh.
Wayne Tank & Pump Co., Fr. Wayne, Ind.

WATER SUPPLY INSTALLATIONS.

Layne & Bowler Co., Memphis, Tenn.

WATER WELL SCREENS.

McEvoy & Co., J. H., Houston, Texas.

WATERWORKS SUPPLIES AND APPLIANCES.

American C. I. Pipe Co., Birmingham.
Bourbon Copper & Brass Works Co., Cincinnati, O.

Caldwell-Wilcox Co., Newburgh, N. Y.
Columbian Iron Works, Chattanooga, Tenn.
Cook, A. D., Lawrenceburg, Ind.

Glamorgan Pipe & Fdry. Co., Lynchburg, Va.
Hamburg Roller Works, Hamburg, Berks County, Pa.

Michigan Pipe Co., Bay City, Mich.
Standard Wood Pipe Co., Williamsport, Pa.

U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.

Wood & Co., R. D., Philadelphia, Pa.

WATTMETERS.

Weston Electrical Instr. Co., Newark, N. J.

WELDING.

Blaw-Knox Co., Pittsburgh, Pa.

WELDING APPARATUS.

Electric Arc.
General Electric Co., Schenectady, N. Y.
Kentucky Oxygen-Hydrogen Co., Louisville, Ky.

WELDING ROD.

Mueller Metals Co., Port Huron, Mich.

WELL CONTRACTORS. (Oil, Artesian, etc.)

Cook, A. D., Lawrenceburg, Ind.
Hunt Specialty Well Drilling Co., Charleston, S. C.

Snyder Pump & Well Co., Richmond, Va.
Va. Mchry. & Well Co., Richmond, Va.

WELL STRAINERS. (Oil, Water & Gas.)
McEvoy & Co., J. H., Houston, Texas.

WELL SUPPLIES. (Oil, Water & Gas.)
McEvoy & Co., J. H., Houston, Texas.

WELL TOOLS AND SUPPLIES.

Cook, A. D., Lawrenceburg, Ind.

Keystone Driller Co., Beaver Falls, Pa.

WHARFBOATS. (Steel.)

Midland Barge Co., Midland, Pa.

WHEELS AND AXLES.

Electric Wheel Co., Quincy, Ill.

WHEEL PRESSES.

Caldwell & Co., E. R., Bradford, Pa.

WINCHES.

Hadfield-Penfield Steel Co., Bucyrus, O.

WINDLASSES.

Hadfield-Penfield Steel Co., Bucyrus, O.

WINDOW FRAMES AND SASH. (Metal.)

Lupton's Sons Co., David, Phila., Pa.

Truscon Steel Co., Youngstown, O.

WINDOW GLASS.

American Window Glass Co., Pittsburgh.

WINDOW GUARDS.

Audubon Wire Cloth Co., Audubon, N. J.
Dow Co., Inc., The, Louisville, Ky.
Meyers Mfg. Co., Fred. J., Hamilton, O.

Stewart Iron Wks. Co., Inc., Cincinnati.

WIRE.

All Kinds.
Ryerson & Son, Jos. T., St. Louis and New York.

Barbed Wire, Etc.

American Steel & Wire Co., Chicago.
Youngstown Sheet & Tube Co., Youngstown, O.

Brass and Copper.

Chase Metal Works, Waterbury, Conn.
Mueller Metals Co., Port Huron, Mich.

Fence.

Amer. Fence Constr. Co., New York.
Anchor Post Iron Works, New York, N. Y.

Fiat and Round.

Roebbling's Sons Co., John A., Trenton, N. J.

Galvanized and Annealed.

American Steel & Wire Co., Chicago, Ill.

Telephone, Telegraph.

American Steel & Wire Co., Chicago, Ill.

Welding.

Roebbling's Sons Co., John A., Trenton, N. J.

WIRE CLOTH. (Iron, Steel, Brass, etc.)

Audubon Wire Cloth Co., Audubon, N. J.
Caldwell & Son Co., H. W., Chicago.
Harrington & King Perforating Co., Chicago, Ill.

Ludlow-Saylor Wire Co., St. Louis, Mo.
New Jersey Wire Cloth Co., Trenton, N. J.

Wickwire-Spencer Steel Corp., New York.

WIRE GOODS.

Amer. Fence Constr. Co., New York.

Cyclone Fence Co., Waukegan, Ill.

Dufur & Co., Baltimore, Md.

Dufur, Baggett & Co., Baltimore, Md.

New Jersey Wire Fence Co., Trenton, N. J.

WIRE NETTING.

Ludlow-Saylor Wire Co., St. Louis, Mo.
New Jersey Wire Cloth Co., Trenton, N. J.

Wickwire-Spencer Steel Corp., New York.

WIRE ROPE.

Broderick & Bascom Rope Co., St. Louis.

Leach & Sons Rope Co., A., St. Louis.

Williamsport Wire Rope Co., Williamsport, Pa.

WIRE ROPE CLIPS.

American Steel & Wire Co., Chicago, Ill.

Broderick & Bascom Rope Co., St. Louis.

Leach & Sons Rope Co., A., St. Louis.

WIRE ROPE FITTINGS.

Broderick & Bascom Rope Co., St. Louis.

Leach & Sons Rope Co., A., St. Louis.

WIRE ROPE SLINGS.

Roebbling's Sons Co., John A., Trenton, N. J.

Alphabetical Index of Advertisements

A	Berry Bros. 132	Chattanooga Sewer Pipe Works 165	Draper, E. S. 62	Greiner & Co. J. E. 62
A 270 132	Beasmer Gas Engine Co. 5	Chesapeake Belting Co. 19	Drouve Co., The G. 41	Grey Steel Products Co. 139
A 271 132	Bethlehem Steel Co. 26	Chesapeake Iron Works 24	Druid Oak Belting Co. 19	Griffith, Frank 138
Abendroth & Root Mfg. Co. 132	Severley Heating Co., Inc. R. C. 5	Chicago Bridge & Iron Wks 60	Dufur, Baggett & Co. 40	Grinnell Co. 1
Acme Wagon Co. 160	Biggs Engineering Co., W. E. 63	Chicago Watchman's Clock Works 42	Dufur & Co. 40	Gruender Patent Crusher 1
Advance Co. 61	Binney & Smith Co. 44	Christie Co., L. R. 59	Dunlap & Roschert Press Co. 58	Gulport Ceresoting Co. 52
Afr-Tight Steel Tank Co. 61	Birmingham Clay Products Co. 46	Church & Dwight Co. 52	DuPont de Nemours, E. I. 1	Gulf Refining Co. 22
Alabama Company 35	Co. 46	Chuse Engine & Mfg. Co. 4	Gump, B. F. 136	Gulf States Portland Cement Co. 22
Albright & Mebus 62	Birmingham Realty Co. 132	Cincinnati Fly Screen Co. 4		
Allegheny Steel Co. 36	Birmingham Rail & Loco. Co. 139	Cincinnati Frog & Switch Co. 141		
Allen Engineering Co. 36	Birmingham Slag Co. 139	Cincinnati Iron & Steel Co. 37		
Allen Smith & Mfg. Co. 144	Black & Veatch 123	Citizens Ice Co. 132		
Allis-Chalmers Mfg. Co. 156	Black & Veatch 123	Clark, Jr., Elect. Co., Jas. 1		
Allison, Walter A. 63	Black River Cypress Co. 62	Clark & Krebs 62		
Allyn & Co., A. C. 123	Blake Lumber Co., Thos. W. 48	Classified Opportunities 127-128		
Alpha Photo Eng. Co. 60	Blaw-Knox Co. 2	Cleveland Belting & Mch. Co. 135		
American Appraisal Co. 64	Bliss Co., E. W. 25	Coax Engineering Co. 135		
American Bridge Co. 38	Bluford & Co., L. 138	Climax Mfg. Co. 122		
American Cast Iron Pipe Co. 164	Boiler Tube Co. of America 53	Clinchfield Portland Cement Corp. 154		
American Cement Machine Co., Inc. 163	Bonney Supply Co. 158	Cohen & Sons, Louis 140		
American Cement Tile Mfg. Co. 54	Borne, Strymer Co. 22	Coldwell-Wilcox Co. 163		
American Ceresoting Works, Inc. 52	Bourbon Copper & Brass Works Co. 170	Cole Mfg. Co., R. D. 61		
American Ceresoting Co. Inc. 52	Box & Co., Inc., Alfred 24	Coleman-Shoemaker Co. Inc. 132		
American District Steam Co. 52	Boxley & Co., W. W. 155	Colonial Ceresoting Co. Inc. 52		
American Elevator & Mch. Co. Inc. 55	Bridgell Co., Inc., W. C. 140	Columbia Wagon & Body Co. 122		
American Enamelled Brick & Tile Co. 46	Broderick & Bascom Rope Co. 70	Columbian Iron Works Co. 170		
American Fence Construction Co. 31	Brooks Supply Co. 138	Columbus Conveyor Co. 163		
American Limestone Co. 155	Brownell Company 5	Columbus Forge & Iron Co. 56		
American Lumber Co. 51	Browning Co., The 1	Columbus McKinnon Chain Co. 180		
American Pattern Wks. Co. 56	Buchanan Co., Inc., C. G. 58	Commonwealth Pipe & Supply Co. 138		
American Process Co. 59	Buckeye Power Co. 42	Concrete Steel Bridge Co. 64		
American Pulley Co. 1	Buckeye Traction Ditcher Co. 149	Concrete Steel Co. 36		
American Rolling Mill Co. 32	Bucyrus Co. 1	Consolidated Prod. Co. 139		
American Saw Mill Machinery Co. 60	Buffalo Forge Co. 1	Construction Machinery Co. 1		
Amer. Sheet & Tin Plate Co. 28-29	Buffalo Steam Pump Co. 1	Continental Gin Co. 171		
American Spiral Pipe Wks. 164	Buffalo Springfield Roller Co. 160	Continental Machinery Co. 1		
American Steel & Wire Co. 17	Builders Exchange Baltimore 66	Converse Bridge & Steel Co. 38		
American Telephone & Telegraph Co. 16	Burkett Sheet Metal Works 64	Cook, A. D. 166		
Amer. Water Softener Co. 15	Burrows, E. A. 23	Cook's Sons, Inc., Adam 23		
American Window Glass Co. 44	Burruss Engineering Co. 135	Cooper & Co., Hugh L. 62		
Anchor Post Iron Works 30	Burt & Co., M. P. 62	Copper & Brass Research Assn. 1		
Anderson Fdry & Mch. Co. 1	Byers Machine Co. 142	Cordele Sash, Door & Lbr Co. 48		
Appalachian Marble Co. 132	Bylesby Eng. & Management Corp. 63	Corinth Machinery Co. 60		
Archer & Co., E. T. 62		Cornell-Young Co. 63		
Ardite Ice Machine Co. 14		Corrington Metal Roofing Co. 54		
Arco Culvert & Flume Mfrs. Assn. 1		Covington Mch. Co., Inc. 24		
Armstrong & Co., Archer. 140		Crane Co. 16-18		
Armstrong Mfg. Co. 6		Crawford & Mayton 39		
Arundel Corporation 158		Crescent Materials Co. 52		
Ashland Fire Brick Co. 15		Cresmon-Morris Co. 21		
Ashtworth, F. K. 62		Crocker-Wheeler Co. 16		
Asphalt Asso., The 159		Crompton & Knowles Loom Works 171		
Atkins & Co., E. C. 1		Crow, Walter Inc. 64		
Atlanta Bolt & Steel Products Co. 56		Cruible Steel Casting Co. 56		
Atlanta Terra Cotta Co. 47		Cummer & Son Co., F. D. 19		
Atlanta & West Point R. R. Co. 1		Curtis Bay Copper & Iron Works 39		
Atlantic, Gulf & Pacific Co. 142		Custodis Chimney Construction Co., Alphonso 7		
Atlas Portland Cement Co. 187		Cutler Mail Chute Co. 44		
Atlas Powder Co. 160				
Audubon Wire Cloth Co. Inc. 41				
Austin Machinery Corp. 1				
Austin Mfg. Co. 58				
Austin-Western Road Mch. Co. 158				
Automatic Electric Co. 64				
Avram & Co., Inc., M. H. 64				
Ayres & Miller 1				
B				
Babcock & Wilcox Co. 7				
Baber, Henry H. 141				
Bacon & Sons, A. S. 46				
Bailey-Labby Co. 26				
Baker Ice Machine Co., Inc. 14				
Ball Engine Co. 150				
Baltimore Belting Co. 19				
Bank of Alabama, The 123				
Bannon Pipe Co. 164				
Barber Asphalt Co. 161				
Barnett Co., G. & H. 1				
Barrett Company 119				
Bartholomew Hardwood Co., E. 63				
Bates, S. R. 63				
Bauer Bros. Co. 144				
Bay City Dredge Works 144				
Beckerley & Trusler 1				
Bell & Co., A. T. 122				
Belmont Iron Works 38				
Benjamin Equip. Co., Harry 140				
Berger Mfg. Co. 41				
Berger Mfg. Co. of Texas 163				
Berkeley, W. N. 62				
Bessmer Gas Engine Co. 5				
Bethlehem Steel Co. 26				
Severley Heating Co., Inc. R. C. 5				
Biggs Engineering Co., W. E. 63				
Binney & Smith Co. 44				
Birmingham Clay Products Co. 46				
Co. 46				
Birmingham Realty Co. 132				
Birmingham Rail & Loco. Co. 139				
Birmingham Slag Co. 139				
Black & Veatch 123				
Black & Veatch 123				
Black River Cypress Co. 62				
Blake Lumber Co., Thos. W. 48				
Blaw-Knox Co. 2				
Bliss Co., E. W. 25				
Bluford & Co., L. 138				
Boiler Tube Co. of America 53				
Bonney Supply Co. 158				
Borne, Strymer Co. 22				
Bourbon Copper & Brass Works Co. 170				
Box & Co., Inc., Alfred 24				
Boxley & Co., W. W. 155				
Bridgell Co., Inc., W. C. 140				
Broderick & Bascom Rope Co. 70				
Brooks Supply Co. 138				
Brownell Company 5				
Browning Co., The 1				
Buchanan Co., Inc., C. G. 58				
Buckeye Power Co. 42				
Buckeye Traction Ditcher Co. 149				
Bucyrus Co. 1				
Buffalo Forge Co. 1				
Buffalo Steam Pump Co. 1				
Buffalo Springfield Roller Co. 160				
Builders Exchange Baltimore 66				
Burkett Sheet Metal Works 64				
Burrows, E. A. 23				
Burruss Engineering Co. 135				
Burt & Co., M. P. 62				
Byers Machine Co. 142				
Bylesby Eng. & Management Corp. 63				
C				
Cabot, Inc., Samuel 1				
Caldwell & Co. 123				
Caldwell & Co., E. R. 123				
Caldwell Co., Inc., W. E. 61				
Caldwell & Son Co., H. W. 4				
Cambria Clay Products Co. 15				
Campbell & Kinsey 123				
Camp Associates, A. V. 63				
Canal Construction Co. 62				
Cannellon Clay Products Co. 15				
Cannellon Sewer Pipe Co. 15				
Canton Art Metal Co. 41				
Canton Culvert & Silo Co. 163				
Capital Lift & Mfg. Co., The 1				
Carborundum Co. 171				
Cardwell Machine Co., The 171				
Carey Co., Thos. F. 139				
Carnegie Steel Co. 33				
Carolina Engineering Co. 62				
Carolina Portland Cement Co. 48				
Carter, Ralph B. 167				
Carthage Marble & White Lime Co. 46				
Castle & Wilson 63				
Central Coal & Coke Co. 51				
Central Fdry Co., The 164				
Central Gulf Lumber Co. 50				
Central of Georgia Railway 172				
Central Pipe & Sup. Co. 138				
Chain Belt Co. 1				
Champion Bridge Co. 39				
Champion Engr. Co., The 1				
Chandler & Chandlee 1				
Charleston Dry Dock & Machine Co. 7				
Charleston Industrial Corp. 1				
Charlotte Elec. Repair Co. 16				
Chase Metal Works 1				
Chattanooga Armature Wks 16				
Chattanooga Boiler & Tank Co. 61				
Chattanooga Paint Co. 54				
Chattanooga Road Mch. Co. 1				
Chattanooga Sewer Pipe Works 165				
Chesapeake Belting Co. 19				
Chesapeake Iron Works 24				
Chicago Bridge & Iron Wks 60				
Chicago Watchman's Clock Works 42				
Christie Co., L. R. 59				
Christ & Dwight Co. 52				
Chuse Engine & Mfg. Co. 4				
Cincinnati Fly Screen Co. 4				
Cincinnati Frog & Switch Co. 141				
Cincinnati Iron & Steel Co. 37				
Citizens Ice Co. 132				
Clark, Jr., Elect. Co., Jas. 1				
Clark & Krebs 62				
Classified Opportunities 127-128				
Cleveland Belting & Mch. Co. 135				
Climax Mfg. Co. 122				
Clinchfield Portland Cement Corp. 154				
Cohen & Sons, Louis 140				
Coldwell-Wilcox Co. 163				
Cole Mfg. Co., R. D. 61				
Coleman-Shoemaker Co. Inc. 132				
Colonial Ceresoting Co. Inc. 52				
Columbia Wagon & Body Co. 122				
Columbian Iron Works Co. 170				
Columbus Conveyor Co. 163				
Columbus Forge & Iron Co. 56				
Columbus McKinnon Chain Co. 180				
Commonwealth Pipe & Supply Co. 138				
Concrete Steel Bridge Co. 64				
Concrete Steel Co. 36				
Consolidated Prod. Co. 139				
Construction Machinery Co. 1				
Continental Gin Co. 171				
Continental Machinery Co. 1				
Converse Bridge & Steel Co. 38				
Cook, A. D. 166				
Cook's Sons, Inc., Adam 23				
Cooper & Co., Hugh L. 62				
Copper & Brass Research Assn. 1				
Cordele Sash, Door & Lbr Co. 48				
Corinth Machinery Co. 60				
Cornell-Young Co. 63				
Corrington Metal Roofing Co. 54				
Covington Mch. Co., Inc. 24				
Crane Co. 16-18				
Crawford & Mayton 39				
Crescent Materials Co. 52				
Cresmon-Morris Co. 21				
Crocker-Wheeler Co. 16				
Crompton & Knowles Loom Works 171				
Crow, Walter Inc. 64				
Cruible Steel Casting Co. 56				
Cummer & Son Co., F. D. 19				
Curtis Bay Copper & Iron Works 39				
Custodis Chimney Construction Co., Alphonso 7				
Cutler Mail Chute Co. 44				
D				
Dahlstrom Metallic Door Co. 1				
Dake Engine Co. 144				
Dalby, Nottingham Co. 136				
Dart Mfg. Co., E. M. 6				
Davis Foundry & Mch. Wks 165				
Davis, J. F. 134				
Davis & Son, G. M. 61				
Davison Chemical Co. 57				
Davison Publishing Co. 171				
Day & Zimmerman, Inc. 63				
De LaVal Steam Turbine Co. 167				
Deware Registration Trust Co. 123				
Delta Equipment Co. 1				
Dempster Eq. Co. 139				
Diamond Rubber Co., Inc. 1				
Dietrich Bros. 37				
Dixie Brass & Foundry Co. 56				
Dixie Mill Supply Co. 136				
Dixon Portland Cement Co. 153				
Dixon Crucible Co. 21				
Domestic Engine & Pump Co. 1				
Dominion Metal Prod. Corp. 163				
Dorman Co., J. F. W. 1				
Douglasday Hill Elec. Co. 16				
Doullut & Williams Co. Inc. 62				
Downing Iron Works 61				
Dow Co. Inc. The 70				
Draper Corporation 62				
Druid Oak Belting Co. 19				
Dufur, Baggett & Co. 40				
Dufur & Co. 40				
Dunlap & Roschert Press Co. 58				
DuPont de Nemours, E. I. 1				
E				
Eagle Wagon Works 1				
Earle Gear & Machine Co. 170				
Eastburn, Chas. T. 129-139				
East Iron & Machine Co. 140				
Eastman Gardner Hardwood Co. 48				
Eavenson & Associates, Howard N. 62				
Edge Moor Iron Co. 61				
Edwards Mfg. Co. 41				
Eisert, Hermann 62				
Electric Bond & Share Co. 123				
Electric Controller & Mfg. Co. 1				
Electric Holter & Derrick Co. 137				
Electric Motor Works 62				
Electric Wheel Co. 26				
Elkins & Co., M. W. 122				
Elphinstone, D. C. 1				
Empire Pump & Valve Co. 170				
Empire Refractories, Inc. 1				
Eppinger & Russell Co. 52				
Erie City Iron Works 1				
Erie Machine Shops 160				
Erie Pump & Engine Works 1				
Erie Steam Shovel Co. 150				
Evans & Co., Victor J. 120				
Ezech's Sawmills Sales Co. 1				
F				
Fairbanks, Morse & Co. 1				
Farris Bridge Co. 38				
Fawcett Machine Co. 19				
Federal Phosphorus Co. 57				
Fernholz Brick Mch. Co. 53				
First Nat. Bank, Richmond Va. 1				
Fitz Water Wheel Co. 139				
Fleet-McGinley Co. 152				
Florida Metal Products Co. 163				
Floy Mfg. Co., S. 144				
Flood Gas Engine Co. 1				
Ford, Bacon & Davis, Inc. 63				
Forschner, Alfred J. 139				
Forster Co., H. M. 1				
Foulhoux, J. A. 62				
Foundry Bros. Company 140				
Fraser, Brack & Co. 1				
Freeland, Roberts & Co. 62				
Freeport Sulphur Co. 57				
Freese & Co., E. M. 53				
Frick Co. 1				
Friend & Co. 158				
Frink, Inc. I. P. 44				
Fröhling & Robertson 6				

King, Philip T. 46
 Kingsport Brick Corp. 46
 Kinneer Mfg. Co. 70
 Kinney Mfg. Co. 159
 Kirby-Bonner Lumber Co. 50
 Klaff & Co. 132-140
 Klein & Co., Nathan 137
 Klyce, B. H. 62
 Knoxville Iron Co. 36
 Koehring Co. 162
 Kris & Sons, Henry A. 136

L

Laclede Steel Co. 38
 Lancaster Iron Works 1
 Lane Mfg. Co. 122
 Larew Printing Co. 122
 Lau 140
 Layne & Bowler Co. 165
 Lebow Bros. Co. 138
 Lee, Wm. S. 62
 LeFeb & Co., James 166
 Leisman, Chas. T. 141
 Leoderking, Philip H. 42
 Leichen & Sons Rope Co., A. 70
 Lewis & Co., Henry 140
 Life, Martin J. 62
 Lidgerwood Mfg. Co. 146
 Link Belt Co. 122
 Liquids Despatch Line 46
 Lockhaven Brick & Tile Co. 46
 Lombard Iron Works & Supply Co. 26
 Long Bell Lumber Co. 1
 Long Co., M. A. 62
 Lush Engineers, The 40
 Lush-Saylor Wire Co. 40
 Lush Valve Mfg. Co. 170
 Lush-Caldwell Co. 54
 Lushs Co., The Daniel M. 62
 Lukens Steel Co. 13
 Luskheimer Co. 13
 Lupton's Sons Co., David 40
 Luten, Daniel B. 62
 Luter, Clark A. 62

M

McCalla Co., Harold 37
 McCalla Co., J. B. 65
 McClave-Brooks Co. 38
 McClintic-Marshall Co. 38
 McCreary Co., J. B. 62
 McDavitt-Fleming Co. 62
 McEvoy & Co., J. H. 70
 McEwen Lumber Co. 62
 McGinnis & Co., N. C. 62
 McGowan Co., John H. 170
 McInerney Co. The 55
 McLeahan-Stone Mch. Co. 59
 McMillan, A. 136
 McRae Lumber Co. 48
 McWilliams Co., Inc. 62
 Macon Concrete Roller Co. 1
 Main, Chas. T. 62
 Mal-Gra Casting Co. 56
 Mallory Mch. Corp. 135
 Manhattan Perf. Metal Co. 59
 Manatee Iron Works Co. 170
 Marbleloft Co., The 42
 Marine Bank & Trust Co. 123
 Marine Metal & Sup. Co. 138
 Marion Steam Shovel Co. 148
 Markel, F. E. 64
 Maryland Metal Building Co. 123
 Maryland Trust Co. 123
 Master Builders Co. 43
 Mayer, F. 141
 Meade & Co., Richard K. 62
 Medart Mfg. Co., Fred. 41
 Medart Co., The 20
 Meese & Meese 65
 Mehan Co., Andrew J. 134
 Mercantile Trust & Deposit Co. 123
 Merchants & Manufacturers Assn. 40
 Meyers Mfg. Co., Fred J. 40
 Michigan Pipe Co. 164
 Midland Barge Co. 35
 Midvale Steel & Ord. Co. 62
 Milburn, Heister & Co. 62
 Miles Machinery Co. 1
 Miller & Co., G. L. Inc. 1
 Mister Homes Co., The 38
 Mitchell-Tappen Co. 38
 Model Land Co. 65

Moeschl-Edwards Corrugating Co. 55
 Moffatt Mch. Mfg. Co. 145
 Monaghan Machine Co. 145
 Monro Warrior Coal & Coke Co. 51
 Moore Dry Kiln Co. 51
 More-Jones Brass & Metal Co. 34
 Morgan Construction Co. 34
 Morgan Millwork Co. 48
 Morris Machine Works 170
 Morrison Co., Hackley 63
 Morse Agricultural Service 63
 Morse Chain Co. 67
 Mott's Sons, Geo. F. 132
 Mount, W. D. 63
 M. O. & W. Engineering Corp. 63
 Mueller Metals Co. 58
 Mundt & Sons, Chas. 58
 Mundy Hoisting Engine Co. J. S. 146
 Murphy's Hotel 56
 Murray Iron Works Co. 6
 Myers & Bro. Co., F. E. 165

N

Nagel Electric Co., The W. G. 139
 Nashville Ind. Corporation 1
 National Blow Pipe & Mfg. Co., Ltd. 60
 National Cast Iron Pipe Co. 164
 National Cement Co. 155
 National Hoisting Engine Co. 143
 National Pressed Steel Co., The 137
 National Steel Fabric Co. 137
 National Steel Rail Co. 140
 National Transit Pump & Mch. Co. 168
 National Tube Co. 8-9
 Newbury, J. G. 129
 New Jersey Fdry & Mch Co. 23
 New Jersey Wire Cloth Co. 40
 New York Continental Jewell Filtration Co., The 15
 Newman Clock Co. 70
 Nicholson File Co. 70
 Niles-Bement-Pond Co. 140
 Norfolk Equipment Co. 140
 Northern Fire Apparatus Co. 120
 Northwest Engineering Wks 120
 Nussbaum, & Co., V. M. 136
 Nuvoos & Co., John 65

O

O'Brien & Yost 62
 O'Brien Machinery Co. 134
 O'Connell Brick & Tile Co. 45
 Ohio Service Company 136
 Oliver Iron & Steel Co. 62
 Olson, O. 62
 Opulha & Hill Inc. 62
 Orton & Steinbrenner 143
 Osgood Co. 147
 Otis, R. R. 147
 Owen Bucket Co. 144
 Owensboro Sewer Pipe Co. 165

P

Pacific Flush-Tank Co. 54
 Packard Motor Car Co. 138
 Palmer-Rhodes Co. 138
 Parks Ball Bearing Machine Co., The 60
 Parkes Engineering Co. 64
 Parsons, Klapp, Brinckerhoff & Douglas 63
 Patten Mfg. Co. 36
 Patterson Steel Co. 36
 Pawling & Harnischfeger 65
 Pennsylvania Drilling Co. 65
 Pennsylvania Pump & Compressor Co. 144
 Pensacola Crowsoting Co. 52
 Petersburg Sand & Gravel Corp. 158
 Petroleum Iron Works Co. 165
 Pfannmueller Engineering 136
 Phoenix Iron Co. 39
 Photostat Corp. 65

S

Salem Fdy. & Mch. Wks. 56
 Sales Corp. The 138
 Samler Bros. Co. 138
 Samson Cordage Works 19
 Sanders & Sweeney 65
 Sandrup Redding Co. 22
 Saunerman Bros. 60
 Savannah Blow Pipe Co. 60
 Savannah Crowsoting Co. Inc. 52
 Scales & Sons Co., Wm. B. 15
 Schoedinger, F. O. 65
 Schofield Iron Works 7
 Scofield Engineering Co. 63
 Seranton Forging Co. 56
 Seaboard Air Line 121
 Security Bank Note Co. 135
 Seeger Machine Tool Co. 135
 Seyfert's Sons, Inc., L. F. 135
 Sharon Pressed Steel Co. 37
 Sharpville Boiler Works 65

Pipe & Contractors' Supply Co. 139
 Pittsburgh-Des Moines Steel Co. 37
 Pittsburgh Plate Glass Co. 54
 Pittsburgh Steel Co. 37
 Pittsburgh Testing Laboratory 64
 Platt Iron Works 170
 Plymouth Cordage Co. 1
 Portable Machinery Co. 163
 Porter Co., H. K. 142
 Portland Cement Ass'n. 1
 Portsmouth Refractories Co. 1
 Posey, James 64
 P. O. Box 134 129
 Pottstown Steel Co. 132
 Powell Co., Wm. 122
 Power Mfg. Co. 6
 Power Specialty Co. 7
 Pratt & Whitney Co. 24
 Prentiss & Co., Inc. Henry 139
 Probert Sheet Metal Co. 40
 Progressive Mfg. Co. 57
 Provident Savings Bank Trust Co. 123
 Pulsometer Steam Pump Co. 169

R

Racine Tool & Machine Co. 25
 Raleigh Wyoming Coal Co. 140
 Randle Machinery Co. 134
 Raymond Bros. Imp. Pul. Co. 59
 Raymond Mfg. Co., Ltd. 51
 Reading Chain & Block Corp. 23
 Reed & Dusker 19
 Reedy Elevator Co. 55
 Reeves Pulley Co. 20
 Reflectolite Co., The 44
 Regnas & Co., J. R. 26
 Reid, J. G. 62
 Reilly Mfg. Co., J. J. 168
 Renneburg & Sons Co., Edw. 59
 Republic Iron & Steel Co. 36
 Republic Iron Works 36
 Richards-Wilcox Mfg. Co. 42
 Richmond Fireproof Door Co. 1
 Richmond Structural Steel Co. 1
 Rider-Erison Engine Co. 55
 Ridgway & Son Co. 158
 Ripley Fdry. & Mch. Co. 158
 Roach & Stansell 64
 Roanoke Iron & Bridge Wks. 38
 Roberts Filter Mfg. Co. 15
 Robertson Co., H. H. 54
 Robins & Co., A. K. 26
 Robins Conveying Belt Co. 150
 Robinson & Co., Dwight P. 63
 Robinson & Orr 140
 Robinson & Son Co., Wm. C. 22
 Roebeling's Sons Co., John A. 150
 Roenstiel Co., The Lewis S. 123
 Rust Engineering Co. 1
 Ryerson & Son, Jos. T. 1

T

Table of Contents 69
 Tait Godfrey, M. S. 63
 Taplin-Rice-Clerkin Co. 4
 Tarr, Louis A. 140
 Tennessee Coal, Iron & R. Co. 27
 Tennessee Copper Co. 155
 Terry Mfg. Co. 140
 Terry, O. F. 140
 Texas Co. 153
 Texas & Pacific Railway Co. 129
 Texhoma Oil & Refining Co. 19
 Thomas Grate Bar Co. 6
 Title Guarantee & Trust Co. 60
 Todd, E. E. 60
 Todd & McCullough 122
 Toomey, Inc., Frank 134
 Traylor Engin'g & Mfg. Co. 168
 Treadwell Construction Co. 1
 Triumph Electric Co. 63
 Trucon Laboratories 56
 Trucon Steel Co. 3
 Tucker & Laxton 63
 Turner Architectural Service 62
 Turner, C. A. P. 62
 Turner Co., C. 139

U

Union Drawn Steel Co. 15
 Union Mining Co. 15
 Union Sulphur Co. 65
 United Iron Works, Inc. 1
 Universal Concrete Products Co. 53
 Universal Machine Co. 26
 Universal Road Mch. Co. 159
 U. S. Cast Iron Pipe & Fdy. Co. 117
 U. S. Salvage & Equip. Co. 1

V

Vendor Slate Co. 54
 Vilter Mfg. Co. 14
 Virginia Bridge & Iron Co. 39
 Virginia Mch. & Well Co., Inc. 64
 Virginia Steel Supply Co. 36
 Vogt Machine Co., Inc. 11
 Vonnegut Hardware Co. 1

W

Wagner Elec. Corp. 62
 Wallace & Crenshaw 62
 Walsh Fire Clay Prod., Co. 15
 Walsh & Weidner Boiler Co., The 61
 War Department 130-131
 Warner Petroleum Co. 22
 Warren Bros. Co. 152
 Warsaw Elevator Co. 55
 Waterbury Mfg. Co. 54
 Wayne Tank & Pump Co. 1
 Weir Frog Co. 141
 Weiss, B. M. 62
 Weller, Francis R. 62
 Weller Mfg. Co. 20
 Westbrook Elevator Co., W. J. 55
 Westbrook Elevator Mfg. Co., Inc. 55
 Western Tool & Mfg. Co. 25
 Westinghouse Electric & Mfg. Co. 1
 Westinghouse Traction Brake Co. 1
 Weston Electrical Instr. Co. 1
 West Virginia Fire Clay Mfg. Co. 140
 West Virginia Rail Co., Inc. 34
 Wheeling Steel Products Co. 1
 Whitcomb Co., Geo. D. 142
 White Engineering Corporation, The J. G. 63
 White, Gilbert C. 62
 Whitlock Cordage Co. 139
 Wickes Machinery Co. 139
 Wickwire Spencer Steel Corp. 156
 Widmar Engineering Co. 1
 Wier Lumber Co., R. W. 50
 Wiley & Co., Inc. 62
 Wiley & Wilson 62
 Wilfong Iron Works Co., Millard F. 35
 Willard-Boggs & Co. 141
 Williams Brick Co., Inc. F. Graham 46
 Williams, Henry O. 51
 Williams Patent Crusher & Pulverizer Co. 58
 Williamsport Wire Rope Co. 1
 Willis, W. N. 62
 Wilson Co., The 36
 Wilson & Co., E. H. 140
 Wilson Corp., J. G. 1
 Wilson Tank & Culvert Co. 1
 Winter, Herman L. 138
 Wise & Co., Harold G. 123
 Wood Drill Works 150
 Wood & Co., R. D. 170
 Wood & Lane Co. 138
 Wood Iron & Steel Co., Alan 36
 Wood, F. W. 20
 Wood's Sons Co., T. B. 20
 Wood Towing Corp. 138
 Woolford Wood Tank Mfg. Co., G. 1
 Worthington Pump & Mch. Corp. 5
 Wright Mfg. Co. 23
 Wyckoff & Son Co., A. 164

Y

Yolande Coal & Coke Co. 19
 York Mfg. Co. 14
 Young & Selden Co. 122
 Youngstown Sheet & Tube Co. 10

Z

Zeincker Sup. Co., Walter A. 140
 Zouri Drawn Metals Co. 1

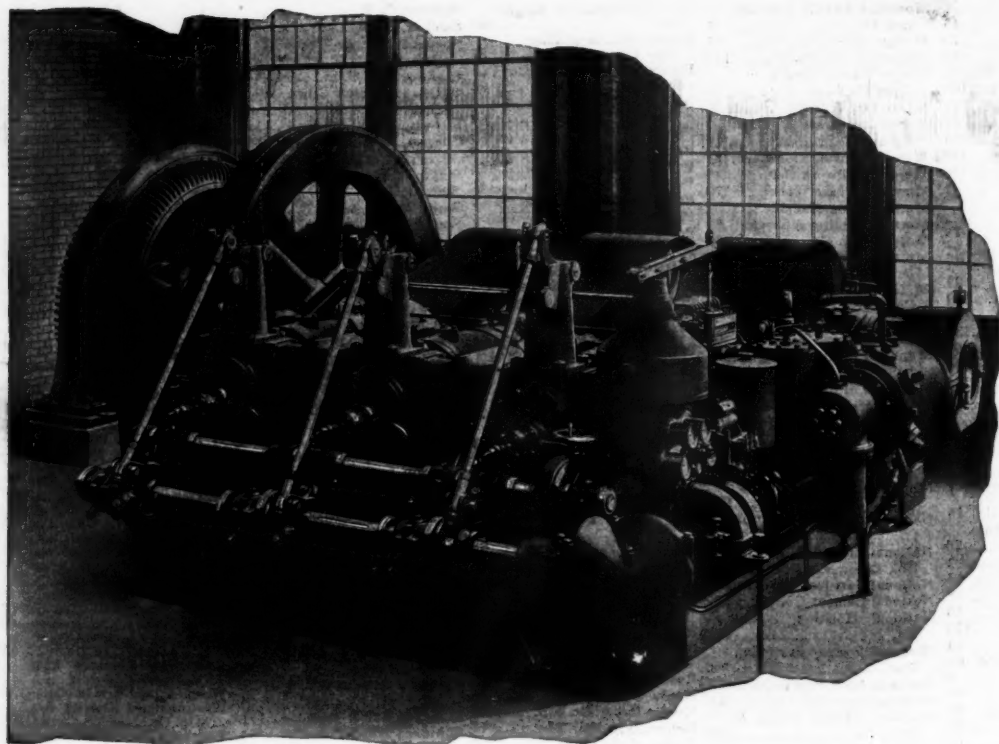
Advs. marked † not in this issue.
 Advs. marked ‡ appear in first issue of the month.
 Advs. marked * appear every other week.

Classified Opportunities

Pages 127-128

Proposal Advertisements

Pages 125-126



*Allis-Chalmers
Triple Oil
Engine Direct
Connected to an
Allis-Chalmers
Generator.*

Diesel Engine Drive

The high thermal efficiency of the Allis-Chalmers Diesel Engine and its special constructive features, together with the fact that it can be successfully used with any fuel oil that can be pumped makes it a particularly economical and desirable form of prime mover.

Complete electric power units Diesel engine driven and engines for either direct connected or belted service are designed and built by the Allis-Chalmers organization.

Send for Bulletin 1532-M



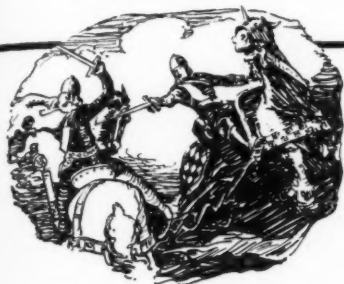
PRODUCTS:

Electrical Machinery
Oil Engines
Gas Engines
Steam Engines
Steam Turbines
Condensers
Hydraulic Turbines
Pumping Engines
Centrifugal Pumps
Mining Machinery
Metallurgical Machinery
Crushing Machinery
Cement Machinery
Flour Mill Machinery
Saw Mill Machinery
Air Compressors
Air Brakes
Steam and Electric Hoists
Farm Tractors
Power Transmission Machinery

ALLIS-CHALMERS

MILWAUKEE, WIS. U. S. A.

THE MEASURE OF QUALITY



THE old armorer was tempering and retempering the blade. His apprentice impatiently urged that it was already better tempered than most steel. "Yes," was the answer, "but no blade I make can be short of the best, for no one knows which blade may stand between man and death."

OUT from the Atlas Mills in a never-ending stream, millions each month, go bags of Atlas Portland Cement. Some destined for giant locks or bridges, some for the crowded city, some for the open country—no one can possibly foretell in the making where the finished cement will be used.

The Atlas Portland Cement Company has the same problem as that old time armorer—and there is only one answer. Every sack of cement that leaves an Atlas plant must be of quality unquestioned.

For over a quarter century Atlas Portland Cement has been tested in every type of modern construction. For over a quarter century it has been deservedly known as "the Standard by which all other makes are measured."

THE ATLAS PORTLAND CEMENT COMPANY

NEW YORK

Boston

BIRMINGHAM

Philadelphia

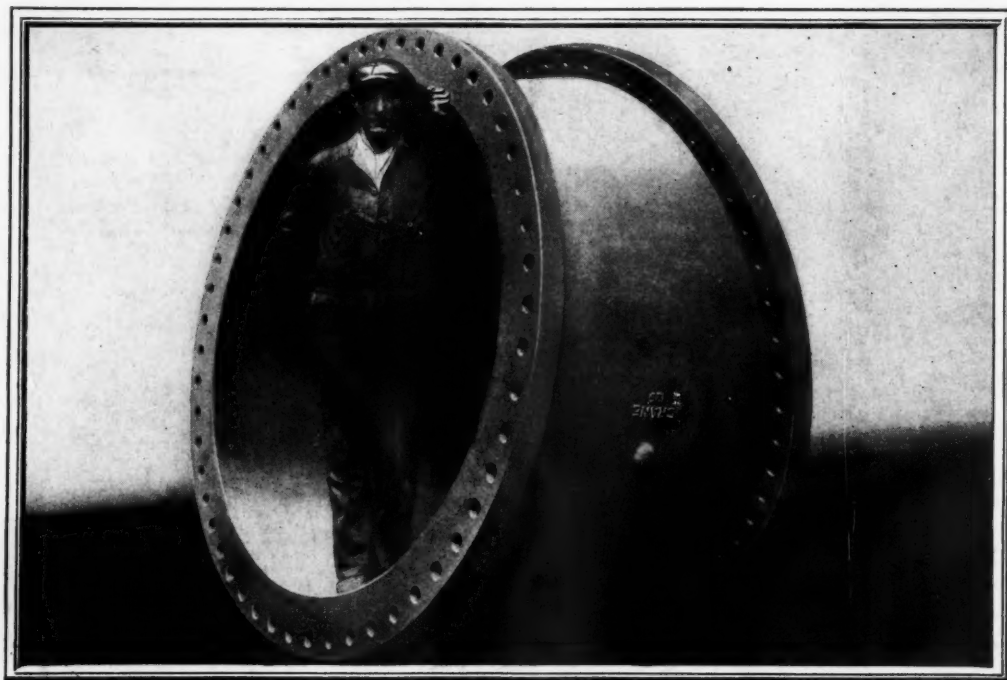
CHICAGO

St. Louis

Dayton

Des Moines





66-INCH LOW PRESSURE CAST ELBOW MADE BY CRANE FOR CARNEGIE STEEL COMPANY

CRANE COMPREHENSIVE SERVICE

In the execution of any engineering project a reliable source of supply is an important factor of economy. Crane valves and fittings supplied for individual requirements are carefully designed and constructed to insure dependable service at a minimum cost for upkeep.

Crane Co. manufactures special valves and fittings to meet the most exacting requirements of any pipe line for any industrial purpose.

CRANE

GENERAL OFFICES: CRANE BUILDING, 836 S. MICHIGAN AVE., CHICAGO

Branches and Sales Offices in One Hundred and Thirty-five Cities

National Exhibit Rooms: Chicago, New York, Atlantic City

Works: Chicago and Bridgeport

CRANE, LIMITED, MONTREAL. CRANE-BENNETT, LTD., LONDON

CRANE EXPORT CORPORATION: NEW YORK, SAN FRANCISCO

C^{IE} CRANE, PARIS

